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Agriculture is the most healthy, the most useful, and the most noble employment of Man.--Washington.

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The Improvement of Sandy Soils.

In considering the manner of renovating exhausted lands, or such as are naturally sterile, there is always a preliminary inquiry to be made by the prudent farmer, as to the profit or loss of the proposed project. In China, and other portions of the East, and in Flanders, and other parts of Europe, this question is never asked. If the *foundation* can be had to work upon, this suffices to determine the undertaking. Their industry, skill, and perseverance are at once put in requisition to accomplish the object, and in this they never fail. No matter how unpropitious or forbidding the prospect. If, as in Holland, the earth demanded for man's subsistence, is several feet below the surface of the ocean, a dyke of sufficient strength is made to secure and hedge it in from the watery waste; ditches are made through it wherever required; a pump worked by a windmill or other power, hrows out the surplus water that cannot be disposed of by draining; other earths are added, if essential, to temper the reclaimed ground;

manures, both vegetable and mineral, are applied; and finally, seeds carefully selected are planted, and the result, the *necessary* result, is that a kind Providence smiles on these persevering efforts, and bountiful crops richly reward the labours of the husbandman. If, as in Belgium, they have an arid sand alone to commence with, they pursue a system of trenching, to which they add all the manures within their reach, and roots and clovers follow in rotation, with occasional other crops, thus completing the reclamation of the sandy heath. If, as in Ireland, Scotland, and some portions of England, a marsh of peat, repellent of all vegetation, save the cold and water-loving lichens; the mass is effectually drained of its antiseptic moisture, which prevents all vegetable decomposition, without which, a re-organization of vegetables in new varieties and other forms, cannot be accomplished, the earth is broken up and exposed to the influence of the elements, and soon by the addition of other earth, destitute, perhaps, of fertility in itself, the whole surface is at once brought into perfect and lasting subjection. In Egypt, where the naked sands have been driven by the blasting sirocco since the days of the Pharaohs, whenever the whim or policy of the reigning Pasha dictates the cultivation of any portion of this drifting mass, irrigation and the addition of manures and a portion of other soils, instantaneously produces a change equal to the wand of their own magicians. The transformation is as sudden as it is wonderful and enchanting. Where but a few months before not a blade of grass, or a single shrub had disturbed the solitary waste for thousands of years, extended plats of luxuriant grass rise up in delightful contrast with the surround

ing barrenness; hedges of flowers of every variety and hue greet the eye and perfume the air; while groves of orange and citrons, of dates and pomegranates, minister gratification to every sense.

Such results from the most extreme cases, show the practicability of converting every portion of the earth's surface into prolific fields. Where population is dense, as in the countries above alluded to, *necessity* compels the adoption of such a course. Famine in many instances offers them the only alternative. Self-preservation, the most powerful stimulant that can influence human action, is the controlling motive; and when we see results so astonishing and so gratifying, we are compelled to deduct a portion of the admiration, we should otherwise feel for the architects, and ascribe to necessity, what we should prefer to attribute to an enlightened taste.

The circumstances of our country, are happily, however, widely different. We are not driven to the adoption of any system from the apprehension of want. The question with us is one of pecuniary consideration, or the indulgence of a judicious taste; and as this last is necessarily confined to the few, we must limit our inquiry for the present, exclusively to the former.

The first question for the farmer or planter then is, *will it pay*, to reclaim my worn out fields and restore them again to their former fertility? An earlier and more appropriate inquiry should have been made, when he first commenced the cultivation of his land, which is more easily and satisfactorily answered, *shall I maintain my land in its present condition of fertility?* There is a wide difference between supporting the character of a soil already capable of producing a large growth of vegetables, which are occasionally added by entire crops to the land, to sustain its fertility, or it may be to enhance its productiveness, and the slower process of accumulating a soil through years of careful toil, where sterility already exists. The first may be done at the same time that the husbandman is abundantly rewarded for his labour; the last requires, perhaps years of delay, before he is sufficiently remunerated for his exertions. Yet this inquiry must be answered fairly and fully, and after a thorough examination of the whole circumstances of the case.

There are three cogent reasons against reclaiming sterile lands in our country, viz. the great abundance of new, cheap lands; the low price of agricultural products; and the high price of labor. There are on the other hand some equally strong reasons to counteract these. The two that generally exist, are proximity to

one's own land already under cultivation, and this motive is greatly enhanced, if it belongs to the estate, as it generally does; and such lands generally have the advantage of being near to market, or afford facilities of intercourse to them by roads or otherwise. There may also occasionally be other advantages which are from their weight and consequence, fully entitled to determine the question in favor of the project of reclaiming. Such are the existence in the vicinity, of mineral, or accumulated stores of vegetable manures. If for instance, there are deposits of mud, or clay, or lime, or peat, or swamp muck, near by, which may be conveyed to the land at not too great an expense; or if contiguousness to the sea, afford any of the marine sources of fertilization, such as sea-weed, which is charged with salts and vegetable matter, and especially if fish can be procured in quantities, to impart sufficiently their fertilizing properties to the light soils of the Atlantic coast; or if facility for irrigation exist; if one or more of these resources can be had for imparting fertility to exhausted land, the plan to be pursued is plain and easy. The addition of either will generally afford such a measure of productiveness, that the subsequent vegetable growth can yield all the addition that may be necessary for an eminently fertile soil. If these are wanting, the process is a slower one, though with care and attention, if the farmer can afford it, not the less certain.

It would afford the surest clue to the best method of improving a soil, to ascertain, if possible, in what elements essential to vegetable production, if any there are, it is deficient. The strictest analysis has shown that several inorganic substances are necessary to the perfect growth and maturity of every plant. These exist in the ash of vegetables, and are fixed and immovable, and drawn for all practical purposes, *exclusively* from the earth where the plant grows. Soda may, it is true, be often carried by the ocean blasts, to a greater or less distance and in larger or smaller quantities, according to their strength, and sometimes deposits from this source are found far inland. Occasionally other fixed matters may be temporarily suspended in the air, which are subsequently deposited on the earth, but not in sufficient quantities to afford an appreciable supply to growing vegetation.

The inorganic substances required for wheat, are potash, soda, lime, magnesia, alumina, silica, iron, sulphure, phosphorus and chlorine. In addition to the above, barley contains manganese; and many vegetables contain iodine; this with chlorine and soda being furnished in sea water, and the two last are the exclusive ingredients of salt. All the grains, clover.

grasses, turnips and other roots, and all other plants, require most of the above substances in greater or less proportion. *These are indispensable to the perfect development of the vegetable.* If any soil is deficient in one or more of them, it cannot mature the crops requiring them, and though perhaps they are never entirely wanting, yet if they are absent in sufficient quantities for the use of the different vegetables required, they are classed as barren. The spontaneous growth of certain trees and shrubs is a surer test of the existence or deficiency of inorganic materials adequate to the support of profitable vegetation, than even the alembic of the chemist. It is shown for instance that the dried wood of Poplar, Elm, Hickory and Maple, contain a proportion of ashes, greatly exceeding those of the Birch, Pine and several species of the dwarf or scrub Oak. Now what are we to infer from this, but that Poplar, Elm, Hickory and hard Maple, when spontaneously existing in great perfection, indicate in the soil, an abundance of the alkalis, and other inorganic matters existing in ashes? or in other words that the existence of these trees show a good soil? And what are we to infer from the profusion of Willows, Beech, Birch, Pine and dwarf Oak, but that the soil is deficient in Alkalies? Universal experience confirms these deductions of science.

To understand then, precisely what is necessary to the renovation of exhausted sandy soils, it is first requisite to ascertain their general deficiencies. These are both mechanical and chemical. They are totally destitute of that compactness and adhesiveness, essential firmly to secure the roots of vegetables; and incapable from the want of intimate contact, of conveying to them the liquid nutriment, necessary to their growth. They are leechy; allowing the rains that fall upon them to evaporate speedily, or sink far beneath the surface beyond the reach of the thirsty roots. They are equally wasteful of manures added to them, yielding their rich gases at the first demand that is made, whether it be from the dissolving rains, or the exhausting heat, and this renders it necessary when cultivated in any crops excepting grass, that manure should be applied only just before it is required to put in the seed, and from the great facility with which its parts with it, they not unfrequently afford a large first crop.

They possess a white, glazed surface, which, in the last number of our paper on the subject of "hoeing crops," we showed, is unfavorable to absorbing the heat from the sun's rays, and conveying the desired warmth to stimulate the absorbent vessels beneath the surface; and equally incapable of a rapid evaporation of heat, when the influence of the sun is with-

drawn, thereby failing to condense a copious dew.

But they are also essentially deficient in combining those ingredients in sufficient quantities, which we have shown above, to be requisite to the perfection of vegetable life. They are made up almost entirely of disintegrated quartz, which consists of 93 to 94 per cent of silica, thus allowing but a small proportion of all the other ingredients demanded for successful cultivation.

Here then we have the deficiencies of a sandy soil, and these being known, the remedies are obvious. It sometimes occurs that a *clay sub-soil* exists under the sandy super-soil. When this is the case, nothing is more obvious, than to bring up by deep ploughing, the clay from beneath, to mix with the sand. If this is not within the reach of a sub-soil plough, the addition of *clay* from adjoining fields is the very best application that can be made. This should be scattered over the field, pulverised and harrowed upon the surface if in grass; or if in tillage, lightly plowed in after thorough harrowing. *Lime* also should be added in quantities proportioned to the amount of vegetable matter in the ground; 10 to 100 bushels per acre according to circumstances; also *clay marls*, containing 5 to 20 per cent of lime; or *calcareous clays*, containing over 20 per cent of lime, or even other calcareous soils, if such as contain a large proportion of clay cannot be obtained. *Muck* from swamps; and especially *peat*, if it can be got, which of course is not to be found far south; after draining and exposure to the air, and thoroughly mixed with animal manures and ashes, are potent agents in the renovation of sandy soils; and there is no application after clay more beneficial than *ashes*, either fresh or leached. They contain generally all the inorganic substances required for the most successful cropping, and in a light soil are unsurpassed by any other manures. *Gypsum*, which is available almost every where in the United States at a moderate price, is a valuable application, at the rate of 100 to 400 lbs. per acre. Barn-yard and animal *manures* of every description cannot be better applied than by adding to any of the above. In addition, *sea-weed* which is rich in powerful salts, and *fish* if they can be had in large quantities, may be spread over the ground and ploughed in, which will make an immediate return in large crops, though they seldom last beyond a single season in very light lands. *Bones* of every description ground or crushed, and *hair and horn* shavings are peculiarly adapted to the objects in view. Charcoal finely pulverised applied in moderate quantity on the surface has been proved to be a most valuable manure. It is rough, porous and black;

consequently, is precisely adapted to correct the mechanical deficiencies of sand. Like lime and alumina, it has the power of condensing ammonia from the atmosphere which it retains in its pores, till demanded by the catalytic power of the growing plants. This is an operation which the farmer should of all others endeavor most to promote, and if he can but keep his soil in the condition in which it will appropriate the fertilising properties abounding in air and dews, he will add fertility to his products, without the expense of furnishing too large a portion of this food in solid manures. In addition, a top dressing of *common salt*, *nitrate of potash*, (*saltpetre*) and *dry sulphate of soda*,* and various other more expensive articles may be used, if they can be afforded. If lands can have the benefit of irrigation from a constant stream, the effect (in connexion with some of the above,) will be instantaneously perceived, and especially if charged with some of the fertilising salts as they frequently are; or indeed in such cases, they perhaps will come filled with all the necessary ingredients for producing a high state of fertility.

With one or more of these ingredients to begin with, a proper system of cultivation should at once be commenced and rigidly followed out. If the applications made are not sufficient to ensure permanent fertility, which they cannot be unless by irrigation with the right material; or it be not economy to add other manures in preference; *enriching crops* should be sown, and when nearly or quite matured, should be turned in, to be succeeded by others at proper intervals, so as fully to maintain, or what is better, to increase the capability of the soil. For this purpose, *any vegetation* will not come amiss; but the most suitable are *clover*, *buckwheat*, *rye*, *oats*; and if these are fed upon the ground, nearly all their benefit will be yielded to the land, at the same time that they have afforded no inconsiderable support to the stock of the farm. All manures should be carefully husbanded and applied; all the *stock* that can be sustained on the premises should be kept, and especially sheep; and the *roller*† should always be used to give as much firmness and compactness to the surface as possible.

* Glauber salts is precisely the same chemical composition as dry sulphate of soda, with the exception, that the former has an addition of rather more than half its entire weight of water, (55 or 56 per cent.) which gives to it the crystalline form. The dry sulphate of soda can be purchased in New-York for about one cent a pound, and at this price, we have no doubt, in the neighborhood of vegetable markets, it would afford a most judicious and remunerating top dressing. It should be applied in May or early in June.

† Hon. Wm. Clark, of Northampton, Mass., has recently sent us an excellent article on the above subject, which appeared in the N. E. Farmer. His views are sound and correct, and many of them based on his own experiments. The use of the roller, he considers of prime necessity in the proper cultivation of light soils, and both reason and experience fully corroborate his views.

A proper *rotation* is essential to successful cultivation of light soils, unless it be required to keep them in meadows, in which condition they are soon liable to become foul, and this always require a thorough breaking up again. The rotation may vary with the variety of crops required. We shall give hereafter such as are adapted to the different latitudes of this country; and with such as are suited to the location, thoroughly carried out, and the products consumed on the soil, or returned to it in the manures afforded in their consumption, or, an equivalent for them if the crops are taken from the farm, the soil will be constantly improving. The *salts*, and the proper composition of the soils, are the first things to be acquired. These once in operation the crops will draw largely from the atmosphere and the rains and dews, the organic materials required, and carbon, oxygen, nitrogen, and hydrogen will be rapidly accumulated to fill up the vegetable skeleton, with the flesh and fibre and fluids. These if again given to the soil with the consumed products, afford increased fertility and like interest compounded, will greatly enhance the future profits of the diligent and skilful farmer. We would recommend a series of experiments on a small scale, to be tried by each farmer for himself, with such materials as if found successful may be profitably applied. These are his only sure guides. *Principles* he can get from books, their *application* and *adaptation*, can only be made by himself, and as soil varies through every successive acre over the face of the globe, the salts or mineral manures most perfectly adapted to any given field, can be known only to the cultivator himself. But we have occupied so much room on this subject already, we must forego any further observations at present, but will refer those desirous of additional information to the various items bearing on this matter, that will appear from time to time hereafter.

Tour on the Mississippi.

We were never so strongly impressed with the mighty resources of our country, as we have been since floating down the Mississippi, and stopping occasionally, and making excursions into the interior. It is a land, the resources of which, in an agricultural point of view, can be hardly overrated, and with our present careless mode of cultivation, this valley, embracing as we do in the appellation, all west of the Alleghanies, is capable of supplying a population of at least one hundred millions of people. Taking the whole of the Mississippi into consideration, it is grander than any river in America, and we might add with perfect truth, in the whole

world; still it has nothing upon it approaching the wild mountain scenery of the Hudson, nor the clearness and purity of water, general width, or beauty and variety of shore and islands of the St Lawrence.

Where we entered it at the mouth of the Ohio, it is a mile wide, and this when in full bank, is about the average width to its embouchure in the Gulf of Mexico. In some places it is not more than half a mile wide at high water, at others, including islands, it may be five miles; the greatest width without islands, as near as we could judge, is at Cat Fish Bend, where its probable spread is two and a half miles. These distances of course, do not extend to the great overflowing, as these are sometimes 40 miles in width. But as the banks are covered with a thick growth of forest trees, through which there is no view, and when cut away, a levee is thrown up to guard the land, these are ever the boundaries to the eye, on this mighty stream. At low water where shallows and sand bars exist, it becomes very narrow, occasionally not over 40 rods wide. When we passed down, the water was at full bank, and exceedingly thick and turbid from the wash of its alluvial borders, and bore itself in an immense volume, boiling and wheeling majestically along, buoying on its surface large masses of drift wood, and enormous trees washed away from the banks, and driven high in the overwhelming current, till planted in mid stream as some dreaded sawyer, or lodged in shallows, forming the nucleus of a new shore or island.

There are a few bluffs, as at Memphis, the Walnut Hills, Natchez, Baton Rouge, and sometimes places jutting out on the river like bold headlands, but the banks generally are low and flat of a width of one mile to forty, composed of an alluvial of unsurpassed richness, and of almost unfathomable depth.

From the mouth of the Mississippi to that of the Missouri, a distance by water of about 1300 miles, these deep alluvial bottoms exist of a supposed average width of 20 miles, nearly all of which will be susceptible of a high state of cultivation for corn, cotton, rice and sugar, when the forest shall come to be cut off, and the rays of the sun let in upon the land, and embankments raised to keep out the high water. This is but one small portion of this vast country, judge then of its almost incalculable agricultural resources.

Southern staples at present are very low, sugar especially, which hardly pays the expenses of cultivation; and with the threatened increase on the part of the British government of growing cotton in the East Indies, and an over-production of the article in our own country, the South has determined to partially revolutionise

its system of agriculture, and instead of purchasing largely as heretofore of their northern neighbors, the planters have now commenced raising their own horses, mules, cattle, hogs, sheep, corn, and the small grains, and are determined to tan their leather, and manufacture all their common cotton and woollen clothing, hats, boots and shoes; and put the excess of their labor only into cotton, sugar and rice. In this way, they say that they can live independently within themselves, but the change will be a great blow to the industry of the western farmers; the South has hitherto been one of their best customers, and now it is likely to become a competitor, and under these circumstances we see no hope for the North and West, but to rouse at once and manufacture every thing that is profitable to consume, and thus make a home market for their agricultural products among themselves.

Let us now consider the advantages of the South for the proposed change. On the prairie districts, like the Opelousas, wild grass grows the whole year round, and vast herds of cattle are supported upon it; on the river bottoms, the forest is full of cane and other succulent food, on which they thrive remarkably. Then as to the cultivated resources, rye, barley and oats do well every where, wheat is a fair crop upon the uplands, and we don't know why the Egyptian variety from the valley of the Nile, would not be equally productive on the lowlands. Corn may be planted from the 15th February, to 1st July, and be sure of a crop at the latest season, if the summer do not prove too dry. As to the grasses, we never saw any thing like such thick, rank white clover as we found springing up naturally on the bottoms of the Mississippi: red clover grows remarkably and herds grass, orchard grass and red top no doubt would do equally well, especially the latter. Then there is a fine natural grass, very much in appearance like the blue grass of Kentucky, (*poa pratensis*) the *Herba Hispania*, the Cuba and Bermuda grass, (these two last are probably the same variety,) that grow from September till June quite abundantly; we presume they would flourish nearly as well in the summer, under the shade of the trees, in parks, or if the meadows were moderately irrigated, in the same manner as the rice fields are on the river; but even if grass fails, plenty of corn sown broadcast, may be ready for soiling by the 1st of June, or earlier, and it would be much easier to feed stock here under the shade of the trees, for three months in the summer, than five or six, as at the north in the winter.

Except a few varieties of the apple, which we have no doubt, may be acclimated, all sorts

of fruit and vegetables that we have at the north flourish here in the greatest perfection, besides many known only in tropical climates. Every thing planted in New-York in April, may be done so as far south as the 31° of latitude in January, and what follows in May and June, may be planted in February and March. We left New-Orleans early in May, at which time strawberries and cherries were out, and green corn from an early northern variety; new potatoes, beans, blackberries, and such fruit and vegetables generally, as we do not get till July, were plenty in market.

The stocks of the country, are the descendants mostly of the old Spanish and French cattle introduced into the country, when occupied by the those emigrants. The latter have enormous long horns, curling curiously out from the side of the head, something like a merino buck's, while in the clean sinewy limbs of the latter, we thought we could trace an affinity of blood to the Isle of Jersey breed. They make very good working cattle and pretty fair beef, but the cows are generally very poor milkers. The sheep are principally of the old Spanish stock, with long fine spindle legs, long neck, sharp on the back, but tolerable heavy quarters, and as delicate mutton as we ever tasted. The fleeces are light, and of a medium quality, and without wool on the legs or under the belly. It would be difficult to trace the blood of their swine, unless they have a cross of the Mississippi alligator in them. Suffice it to say, they are generally as wretched brutes as one need look at. Great improvements, however, are now going on in the stock department since the formation of agricultural societies. Very superior blood horses are now produced here, and quite fair ones of the utilitarian kind. Mules are not bred as large as in Kentucky, but in these they are improving. Short Horn, Hereford, Devon and Ayrshire cattle have been sparingly introduced, and the benefits of their crosses are beginning to show, while the Chinese and Berkshire hogs are occasionally seen scattered along on the plantations. There are some fine flocks of Merinos and Saxons, and now and then a South-Down and Leicester. The latter variety of sheep is pronounced too gross and fat to endure the climate, and the same objection was made to the Short Horns, which would scarce ever survive through the year. We apprehend that their so universally dying there arises from two causes, the first is, they are too highly pampered in flesh when bred, and are not introduced at a sufficiently early age to pass through the ordeal of acclimation.

Among the most efficient that we recollect in introducing improved stock into the south, are Messrs Bagg and Wait, who went twice

out to England for this purpose, and brought back Short Horns, Cart horses, and Cleveland bays; South Down and Leicester sheep, and Berkshire hogs. Mr. Robt. W. Scott, of Kentucky, took a fine lot of Short Horns to Mississippi last winter, and Mr. Affleck, editor of the Western Farmer and Gardener, embarked early last fall with a superior lot of cattle and swine from the States of Ohio and Kentucky, and remained all winter, and took particular pains in distributing his animals as widely over the country as possible. Many others have doubtless contributed more or less to the introduction of superior stock into that region, among whom we recollect Messrs. Hendrickson, Mahard, and Beech of Ohio. We trust that the demand in that country will warrant a continuation of the same laudable movements hereafter.

New Orleans is a populous beautiful city, and its hotels particularly magnificent, larger even than the Astor House in New-York. The Cotton Presses also are of great extent; one covers an entire square, and is 600 feet long, by 400 wide. The churches, hospitals, prisons, and the government Mint, are worthy of notice. The old French cathedral is the noblest piece of antiquity America can boast of out of Montreal. In the old part of the town, owing to the prevalence of the French Language and style of architecture in the buildings, one can hardly believe himself in the United States. The markets here are particularly worth visiting; fish and flesh are displayed in great profusion, and plants and flowers, and all the varieties of the north, together with a great variety known only to the south. The foreign exports are second only to New-York, and the river displays a vast variety and great extent of water crafts, from the humble flat boat up to the full rigged merchant ships, and sea and river steamboats.

Notwithstanding the banks of the Mississippi are generally so flat, a sail up its mighty stream particularly from 50 miles below, to 200 miles above New-Orleans, is varied and delightful. The country is cleared up from one to four miles in width and under a high state of cultivation. Fields after fields, continually present themselves to the enraptured eye, some of which are not less than a thousand acres under a single fence, of sugar, rice, cotton and corn, interspersed with meadows of rich grass, dotted by large numbers of horses, mules and cattle, sheep, goats and hogs. The planters however, are scattered thickly along, mostly in the old French and Spanish style of architecture, with piazzas all round, many of these are of imposing appearance, surrounded with beautiful gardens and ornamented grounds, hedged in by the

Orange or Cherokee rose, and where bloom the magnolia, the pomegranate, the myrtle, and a hundred other things, known only to the north, except in a stunted form in conservatories. The quarters of the slaves are neat white cottages, close by and clustered together, form quite a little village, while in the back ground rises the extensive cotton press, or large sugar houses, grouping picturesque enough at the distance, with their tall round tower like chimneys. The forests are noble, and among other trees embrace the live oak, magnolia, cypress, cotton-wood, peccar, coffee tree and sycamore. From the branches of these, waves the Spanish moss in drooping festoons, giving them a most hoary and venerable appearance, while up their tall trunks creeps the ivy and "gadding vine," clothing them in the evergreen freshness of youth.

Tour in England. No. 4.

For a miracle, the day proved fair which was agreed upon with our minister, Mr. Stevenson, to accompany him to Babraham, for the purpose of selecting some South Down sheep, from Mr. Webb's superior flocks, and at half past eight o'clock, on a fair September morning, we took our seats in the Norwich coach at the Golden Cross, close by Charing. The guardsman blew a merry blast from his bugle, the stable boys cried "all right," which was reechoed by the coachman, the crowd gave way, and with a mettlesome team of four high bred coursers, we instantly commenced our jaunt. Our way led through the older part of London, and having passengers to take up here and parcels there, it was a full hour before we had fairly emerged from the almost interminable labyrinth of narrow crooked streets, half shut out from the light of day by high gloomy walls of squares after squares of soot-covered houses. The country was quite flat, and presented much the same aspect before described in the vicinity of London, till we came to Epping Forest, which we found covering a large tract of wild land, the soil a hungry leechy gravel, altogether too poor for cultivation, and from time immemorial, has been suffered to grow over with thickets of bushes and trees, interspersed with small patches of coarse grass, where rose humble but picturesque cottages, peeping out from the dense mass of foliage so wildly surrounding them, and forming within the short space of a few miles, as complete a contrast as could be well drawn by such a scene, and the mighty mass of brick and mortar, composing the vast city from which we had just emerged.

Save the oaks which were few and scattering, and reserved for the use of government, the neighbouring cotters possessed here the right

of the wood, and as fast as the tops and branches of the trees became a little grown, they were pollarded down and lopped off by them for sale, giving the forest a dwarfish and scraggy look, the most singular possible to an American eye. Government, we were informed, held the right of pasture, but the lords of the manors around, that of the soil, and to them, by a process that a long headed English lawyer alone can explain, the rights of the cotters and government are occasionally escheated in detached portions of the forest, when the lords immediately enter upon possession, and append these strips of common to their already overgrown estates, extend their hedges or walls around, and commence replanting them principally with evergreens, and notwithstanding the poverty of the soil, such is the humidity and mildness of the climate, that the trees grow with rapidity, and from their thinnings and cuttings soon begin to pay the owners as large an income for the land thus planted, as if of a richer kind, and under a high state of cultivation.

The smaller game, such as hare and pheasants, were quite plenty here formerly, with now and then a stray deer, but latterly the forest has been so much poached upon, that nearly all wild animals have become extinct within its shadowy precincts. But to make amends for them, and which is much better, plenty of tame ones have taken their place, such as the cotter's cows, donkeys, a dwarf hardy race of sheep, and geese innumerable, that they fat here for the London market. As we were returning to London, we overtook a single flock of eight hundred on the road, driving up from the lower country to be parcelled out in Epping and the neighborhood, for preparation and convenience to their great market.

After doing up fifty miles or more of a superlative McAdam road, at the gay and rattling pace of ten miles an hour, we halted at a roomy cottage inn, where we found the portly form, and cheerful ruddy face of Mr. Webb, waiting to receive us, and all bundling into his roomy gig, we started off some three miles farther from the main road for his hospitable mansion. In this country there is no use in attempting to do business, till the inner man is provided for, so *imprimis*, we must set down to a hearty lunch and a chat, and then *secundus*, we were allowed to walk out and inspect the flocks, which doubtless looked to our eyes one hundred per cent better on a full stomach, than an empty one.

We recollect when landing from our ship at Portsmouth, and taking our course on the top of the stage coach through Hampshire, of seeing in this our first days ride in England, more

than thirty thousand South Down sheep, dotting the hills in every direction, attended by their faithful shepherds and dogs. These were the indigenous sheep of the country, the *unimproved* South Downs, and though a hardy and thrifty race, and making the best of mutton, their carcasses are light, and saving the deep twist and heavy quarters, are rather ill shaped and deficient in the requisites of a superior feeding animal; it was wonderful therefore to see in the flocks now exhibited to us by Mr Webb, what an improvement, science, skill, and perseverance on the part of man can make in the forms of the animal creation; verily they are as clay in the hands of the potter, to be moulded and fashioned according to his will.

Mr Webb is a tenant farmer of some five hundred acres, of what we should call very poor land, on the estate of the Hon. W. Adeane of Babraham Abbey; but this land he was managing with admirable skill, and by means of his stock, manures drawn from other sources, and a systematic rotation of crops, he was obtaining a product of grass, roots, and grain from it, that would quite astonish the farmers of some of our own fertile river bottoms. We think however, that he has great advantages in breeding sheep, for in addition to his own large flock, he has the management and selections of his lords, and also his brothers' some three miles distant on another farm of the estate, and certainly, when we take the size of these superior animals into consideration, their fineness of point, beauty and perfection of form, great weight and closeness of fleece, we cannot but admire them, and feel, as if their improvers from Ellman down, have conferred a lasting benefit upon their country, and are better deserving the honors of knighthood at the hands of their sovereigns, than half of the baronets through the land that have hitherto received the Royal accolade.

Mr Webb's sale of mutton at markets, and of choice animals to breeders at home and abroad, is extensive, besides having an annual ram letting for the season, which he does by auction in the month of July. What his income from these are, it would have been impertinent to inquire, but it is doubtless a large amount. The sire of the buck that we purchased for Mr. Rotch, was hired that season by the Duke of Newcastle for one hundred guineas, (\$500), and we suspect that the average of his lettings was full 30*l.* per head, which probably yielded him an income of at least \$6000 per annum from this source alone, a sum, the receipt of which, would rather astonish any *tenant* farmer in America. But Mr Webb excels in breeding sheep, and at the great annual show of the Royal Agricultural Society; the past year at

Liverpool, he was so fortunate as to carry off all the prizes, except one, for South Downs, although he had to contend with such distinguished breeders as the duke of Richmond, Messrs. Ellman, Grantham, Carver, Catlin, Barnard, Lugar, Whitmore, Hayward and Crisp. Yet this by no means lessens the value of these gentlemen's flocks in our estimation, besides several others that we had the pleasure of looking at during various journeys over England, who did not show. To give an idea of the weight of Mr. Webb's animals, the buck selected for Mr. Rotch, though only six months old, weighed 152*lbs.* on the scales; Bishop Mead's, eighteen months old, 248*lbs.*, and Mr Stevenson's of same age, 254*lbs.*, while a wether, exhibited at Cambridge on Christmas-day 1840, weighed dressed with the head on 200*lbs.*, aside from yielding 28*lbs.* of rough tallow. The average weight of his wethers however, at eighteen to twenty months old, is but about 30 to 35*lbs.* per quarter. The bucks shear from 9 to 11*lbs.*, and the average shearing of the whole flock is 6*lb.* 15*oz.*, and of a quality of wool that we thought better than the generality of South Downs. The fleece is close and compact, and we should think would resist rain, sleet and snow, nearly as well as the best Merinos.

The management of these flocks is much like that of sheep mentioned in our second letter in Berkshire, and we do not think it worth while to enter upon minutia at the present moment. They are very hardy and are never housed in winter, but lie in the open fields and are fed upon hay, with cut turnips, sugar beet or mangel wurzel. In the summer they are taken to rather a poor pasture by day, at a distant part of the farm for change and exercise, and towards night are brought near home, and folded on vetches, clover or rape. The lambs, after weaning are turned into fair pasture, and fed about a pint each per day, of beans, oil cake, or some kind of grain. Mr Webb says, he is an advocate for good feeding, and that a good animal always pays well for it. This is our doctrine, and if people want South Downs to starve, they had better, take up with the smallest of the old unimproved race.*

* These are exceedingly hardy, and will live on the forest downs (high chalky hills), and on miserable heaths, like Bagshot, where the grass is coarse and sour, and the ground is thickly overspread with canada and other thistles and prickly shrubs. We acknowledge that the South Downs are very favorite sheep with us, and we make these precautionary remarks about sheep, lest it should be thought that we were saying too much in their favor. We will now add, that when we looked at Mr. Smith's flock, of Ohio, in March, they were in fine condition, and with the addition of a little hay, had lived entirely in the

From sheep we now passed to the inspection of the Short Horns, of which Mr. Webb had a few, and Mr. Adeane quite a herd, derived principally from the celebrated stock of Earl Spencer, and if you will believe it, my fair countrywomen, we here met the ladies of the Abbey in plain morning dresses, bound upon the same errand as ourselves, and they were the daughters of one of the oldest and most reputable families in England, and had just returned from a two year's tour abroad in France, Germany and Italy, with refined minds, and elegant manners, and yet they could be *interested* in Short Horns.*

But it is not as a stock breeder alone that Mr. Webb excels, for we found him quite as particular in his field crops as in his animals. He is one of the few in England who have commenced the cultivation of the sugar beet, and he gives it a decided preference in its season, over Mangel Wurtzel and Ruta Baga. Many of his observations on these matters are worth recording, showing how particularly and minutely an enlightened English farmer studies his subject and makes his applications. Drawing a Swedes turnip from a patch in a large field over which we were walking, he desired us to taste it, and we found it sweeter and apparently more nutritious than the roots taken from another patch. Now, "said Mr. W.," you would pronounce the first decidedly the most valuable, and would undoubtedly altogether reject the last." Certainly, we replied. "But that wouldn't do with me," he adds, "for

open field on dead standing grass all winter. A flock in Economy, Pennsylvania, though strictly bred in and in for several years, and of course likely to have deteriorated in constitution, looked well in May, even with large lambs by their side, and had been fed, as we were assured by the manager, nothing but hay; and a letter received three months since from Mr. Rotch of Otsego, who resides in a cold latitude, says, "my ewes have had nothing but hay, and never looked better." He has a high-bred flock, carrying in it, the blood of the Duke of Richmond. Messrs. Elliman's and Grantham's, and now that of Mr. Webb's. In looking at his sheep in May 1841, we thought them in too high condition, but Mr. Hollis who showed them to us, replied, "notwithstanding the winter has been severe, they have only had a few turnips with their hay."

* One of the greatest charms in England is the attention that ladies bestow on agricultural affairs, it is the same among our warm hearted countrywomen of the South, who are as great exhibitors in their particular departments, as much interested, and as numerous in attendance at the shows and fairs, as the gentleman, if not more so. It is the case also at the fair of the American Institute in this city, and we hope ample accommodation will be made for the ladies, at the forth coming show and fair of the State Society in September, at Albany, and all be invited to attend. Every member should bring his wife and daughters with him, we mean to set a good example by bringing *all* that we happen to possess.

the first kind pulled, I found on experiment, would not stand the hard frosts of winter in the ground, whereas the last will, so that I am obliged to use the former for fall feeding, and keep the latter for the winter and spring." On a hill very much exposed to bleak winds, we found that he was cultivating wheat and barley with short coarse thick straw, in preference to the long fine straw of the same grains in lower or less exposed lands, and on expressing our surprise at this, he smiled and replied, "that the coarse was the only straw that could stand the winds, and if he sowed his grain there, which produced the fine straw, it would always be blown down, and he could never save a crop." It is by such study and application of particular things, best suited to particular localities, that the English farmer obtains the superior products that he does from a given number of acres, and his example in this particular, is worthy of a more general adoption than at present prevails throughout America.

Having an invitation to dinner at the Abbey, we now dressed and walked over. The buildings are in the Tudor style of architecture, solid, elegant, and commodious; and surrounded by a noble park of Oak, Elms, and the fragrant flowering Linden tree. Col. Scott of the Horse Guards, and a veteran Peninsular campaigner, was down here for the shooting season, and did the honors of the house, and every thing within was in that quiet and refined taste that is always to be found in the well bred circles of England, and which puts the stranger at once at his ease, and makes the hours pass away so agreeably. Adjourned from the dining table to the drawing room, we sipped our coffee, and gazed out upon the exquisite little parterre, or French flower garden, bordering the full rich green of the smooth shaven lawn. The moon had just risen, silvering the tops of the deep shadowy trees of the park, and now played with its mild beams on the soft velvet turf, forming a scene as sweet, "as the bank whereon the mild thyme blows." Fit hour me thought for fairies to hold their revels here.

The next day, Mr. Stevenson was obliged to leave to attend business at the Foreign Office in London, while we remained to pay a visit to the University of Cambridge. On our way thither, we passed the estate of Lord Godolphin, a descendant of the celebrated owner of the Godolphin Arabian. It was here that this noble animal was kept and found his last resting place, and in passing his tomb, it may cause a smile from our readers, when we inform them, that we made a momentary pause in passing, and lifted our hat in reverence to the memory of so renowned a horse. We spent

pretty much the whole day in visiting the college, admiring their exquisite Gothic architecture and wandering by the classic Cam, and through the beautifully adorned parks and pleasure grounds for the Fellows and students, and thinking what famous people had trod there before us. But it is not the province of these sketches to dwell upon such themes, and we pass them over in silence. This is the neighbourhood of a large dairy district, and we obtained some valuable information upon the making of butter and cheese, which we shall communicate hereafter.

A.

Cultivation of the Grape.

It is as simple and easy to cultivate the Grape, and manufacture Wine from it, as to set out an orchard and make cider from the apples.

The best soil for the vine is a light dry loam, with a slight intermixture of clay and calcareous matter, moderately rich, the ground inclining a little to the South. This should be plowed in the fall of the year, at least one foot deep, and trench plowing would be better, making one plow follow directly after another in the same furrow, turning up the ground if possible 15 or 18 inches deep. The utility of this is, to give a light deep surface for the roots to strike into the earth, and thus draw the more nourishment from it, and be sufficiently low and out of the way of being cut off, when the plow is run between the rows for after cultivation.

Planting and Culture. Early in the Spring before vegetation commences, re-plow and harrow the land fine, strike off the rows 6 feet apart, then take cuttings or roots as they can be best obtained, and plant them three feet from each other in the rows. As the vines grow they will require staking and tying up with the stalks of long tough grass, or green flexible straw. The after cultivation is precisely like that of Corn or any root crop, it being necessary merely to plow out between the rows occasionally, and keep the weeds down by hoeing the ground about the vines, where it may be slightly elevated from the centre of the rows, in order to keep them from standing water. Two vines only are left from each main stem of a different year's growth, the rationale of which may be thus simply defined. The branch that grew for instance in the season of '40, bears in '41, and the spring of '42 it is pruned off, and that season another grows in its place, prepared to bear in '43, while that which grew in '41, bears in '42, and is cut off in '43, and the one growing in '42, when the last gave fruit, will bear in '43.

A well cultivated field of grapes, in a reasonable favorable season, will yield 100 bushels to the acre. In this city they are worth 5 to 10 cts pr. lb., in Cincinnati, the vicinity of which is quite a grape region, they readily sold the last season at \$4 per bushel for the table. One hundred bushels will produce 300 to 400 gallons wine, which is worth at least \$1 per gallon, so that it will be seen, that the cultivation of the Grape and making wine is quite a profitable business.

To make Wine. Gather the grapes when fully ripe, put them into a common wash-tub, take a wooden pounder, precisely like that used by women when washing to pound out the clothes, and with light blows thoroughly mash the grapes. Then take them to a screw press made like those used for pressing cider, but instead of laying up the pulp of the grapes in straw, like apple pomace, take pieces of joist 3

inches square, and cut out mortices in each end, and lock them together as high as the pulp is to be laid up, say about 3 feet. These make a firm square box, that will endure a very strong pressure from the screw, which is quite necessary to squeeze out all the wine. Many put a double purchase on the lever of the screw, to better effect this purpose. When the bruised grapes are laid up, fit a plank top just large enough to lay inside the joist to bear down the pulp, place blocks on this, and then commence pressing. Let the wine run out into an open tub, and if it will bear an egg, that is, swim it on the same principle as the strength of lye is tried, commence filling the barrel, but if not strong enough, add from four to ten ounces of sugar per gallon till it will bear the egg.

After being placed in barrels, if the weather be warm, the wine will commence fermenting in a few hours, if cool, in a few days, and if cold, not short of a week or fortnight; in fact, it is subject to pretty much the same natural rule that cider is, and perhaps the better way of producing fermentation, is to place the casks as soon as filled in a cellar, of a temperature of about 50° of Fahrenheit, and thus keep it till fermented and ready to be bottled. If not removed to a cellar previous to fermentation, it should be done as soon as this process is gone through with, and in the following February or March, let it be racked off by tapping the barrel within three inches or so of the bottom, and placing the wine thus drawn from it in another barrel. This should be repeated every year as long as the wine stands in casks, as it tends to purify and improve its quality. If the wine be not clear when the process is attempted, beat up the whites of from three to six eggs for each barrel, and pour in and mix up well, and it will soon settle and rack off clear. To still further improve the quality, add loaf or brown sugar in small quantities to the wine.

Kinds of Grapes. The Cape, or properly, the Schuylkill Muscadell, and the Catawba, both natives of the United States, are considered the best varieties for America, that have yet been tried. The latter is the hardiest and best yielder, and makes a wine very much like the celebrated Rhenish, and we are not sure that it will not eventually prove as good and, command as high a price, for it must be recollected, as yet it has not had sufficient age and care to thoroughly test its qualities. The Muscadell makes a wine tasting something like a mixture of Madeira and Claret. If one pound of sugar be added to each gallon, and it has the advantage of standing 2 years in barrel, and 3 more in bottle, it can hardly be distinguished from fair Madeira. We have tasted such at the house of Nicholas Longworth, Esq., of Cincinnati, that we should have taken for Madeira, had we not been told the contrary, and connoisseurs who pride themselves upon their taste and judgment in such matters, have frequently pronounced it the best of imported, when not informed where made.

The Isabella, and many other varieties of grape are good for the table; but the wine from them either proves too light bodied to keep, or comes out sour, crabbed, and rough. We look upon the cultivation of the grape as in its infancy among us, and have no doubt, especially in the valley of the Ohio, where the climate and soil so admirably suit, of seeing it brought to great perfection in the space of a few years, and if we must have wine, let the millions that are expended abroad, be saved at home by the cultivation of the vine among us. A certain amount of fermented wine is wanted in the arts, and also in some cases of disease, and may be preserved sweet as in ancient days, to the use of which under this form, none can make objection.

Mr. Longworth of Cincinnati, is paying considerable attention to the cultivation of the vine, and in the neighborhood of this beautiful town, he is laying off terraces along the steep hill sides, with solid stone walls after the European manner, at an expense of some \$300 per acre. He has lately discovered a new variety of grape, that promises highly, both for wine and the table. He gave it the name of Segar-box, because the cuttings were accidentally found there. We beg leave to change the name, if no objection be offered, and to henceforth designate it as the Longworth Grape.

For most of the information contained in this article, we are indebted to visits among the Swiss and German settlers, who are cultivating the grape with considerable success in the valley of the Ohio, and especially would we make our acknowledgements to Mr. John E. Mottier, who to his Vineyard, adds a fine Fruit and Vegetable garden.

AGRICULTURAL REPORT, of the Home Industry Convention.—We have received and read with great pleasure the report of the Chairman, Hon. H. Denny, of Pennsylvania. It is a full and able document, and we regret we have not room for it entire, in our paper, but the press of other matter renders it impossible. We give two of his statistical tables. They are significant exponents of the policy our farmers must pursue, to secure an adequate reward for their labor, and the considerate and reflecting will not fail to draw conclusions of vast consequence that is to result from the future policy of this country. The Report will soon be published entire for the public by the American Institute of this city.

Value of Foreign Imports, and of the quantity of Flour, Beef, and Pork, and value of all Agricultural produce, including Rice, except Cotton and Tobacco exported annually by the U. S. from 1827 to 1840.				DOMESTIC EXPORTS.				Total produce of Agriculture exported, except cotton and tobacco, including rice &c. Value.	
YEAR.	IMPORTS, value in Dollars.	FLOUR, bbls.	BEEF, bbls.	PORK, bbls.	FLOUR, bbls.	BEEF, bbls.	PORK, bbls.		
1827	79,484,068	868,492	90,685	73,813	868,492	90,685	73,813	11,128,475	
1828	88,509,824	830,809	66,640	53,836	830,809	66,640	53,836	10,853,686	
1829	74,492,527	837,395	51,100	59,539	837,395	51,100	59,539	12,396,299	
1830	70,876,920	1,127,434	46,842	45,645	1,127,434	46,842	45,645	11,716,080	
1831	103,191,124	1,806,529	60,770	51,263	1,806,529	60,770	51,263	17,826,408	
1832	101,020,266	864,919	55,507	88,625	864,919	55,507	88,625	11,691,732	
1833	108,118,311	955,768	64,322	105,870	955,768	64,322	105,870	13,725,246	
1834	126,521,332	835,352	46,181	82,691	835,352	46,181	82,691	11,337,080	
1835	194,895,742	779,396	38,028	61,827	779,396	38,028	61,827	11,838,085	
1836	189,980,035	505,400	50,226	22,550	505,400	50,226	22,550	10,282,359	
1837	140,989,217	318,719	28,076	24,583	318,719	28,076	24,583	9,349,532	
1838	113,717,404	448,161	23,391	31,356	448,161	23,391	31,356	9,245,607	
1839	162,092,132	922,151	16,189	41,301	922,151	16,189	41,301	13,851,919	
1840	107,141,519	1,897,501	19,681	66,281	1,897,501	19,681	66,281	18,771,075	

The average number of Barrels of Flour, Beef, and Pork, exported annually from the United States from 1791 to 1805 inclusive, taken in periods of five years each, also the average annual exportation from 1791 to 1805 and 1827 to 1840 inclusive.

Years.	bbls. flour.	bbls. beef.	bbls. of pork.	avg. per annum
1791 to 1805 inclusive	819,433	81,906	84,415	
1795 to 1800 "	596,139	79,940	50,971	
1801 to 1805 "	1,031,613	93,042	83,015	
1791 to 1805 "	812,728	84,962	72,800	
1827 to 1840 "	930,572	46,981	57,798	

It would seem almost like supererogation to draw any conclusions so obvious to every intelligent man, on looking over the above tables. It will be seen, that although we have multiplied our agricultural products within the last 50 years immensely, yet the average exportation of flour for the last 14 years, including that of 1840, which shows the largest exportation ever made, we have only exceeded by about one eighth or less than 118,000 bbls, the average exportation of 15 years commencing in 1791, while our exportation of Beef is diminished nearly one half, and that of Pork about one fourth in the same time! Surely our grain growing and meat producing states, must see great encouragement for the future, in the increasing demand from abroad of Northern and Western staples! It is quite unreasonable, so deem the abstractionists and politicians, that the farmers should think of seeking an outlet for their products among their own manufacturers who are willing to take them in exchange for whatever they produce themselves, which we have found after 50 years experience, Europeans will not do. But there is another conclusion to be drawn from the above tables still more remarkable. While we have been importing for the last 14 years over \$115,000,000 annually, the aggregate exports from the North and West, and every thing in the South, excepting Cotton and Tobacco alone, but little exceeds \$12,000,000 annually for the same time. And yet we wonder that exchanges are disordered, every department of our business paralyzed, our credit gone, and our industry and enterprise prostrated to the dust! If our government was not formed to protect us from such a humiliating and needless calamity, we will thank some casuists to inform us what was the object of its organization.

CORN-STALK SUGAR.—Five or six years ago, the great enquiry among the citizens of the U. States was, how they should procure sufficient provisions for their sustenance; now it is, what shall be done with our surplus products? It is not probable that our crops on the whole are more productive, acre for acre, than they were from 1832 to 1840; but we then had more prosperity among our manufacturers, and many that are now cultivating the earth as the only means by which a subsistence can be obtained, were then profitably employed in the various mechanic arts. But a still larger share, from a fancied prosperity in their own condition, were wasting their time, in Quixotic adventures, insane speculations, or luxurious and profligate idleness. Want has returned a large proportion of the latter to the class of producers, where they properly belong, and disaster among a large number of our manufacturers, has compelled them to discharge a considerable portion of their workmen, and turn them over to the cultivation of the soil, unwilling rivals of the great agricultural interest. The country was sadly out of joint then, it is almost equally out of joint now; but we trust there are causes in operation that will soon recover all our important national interests, and restore health and prosperity to the body politic again. Another great cause, though a recent one, for the surplus of corn, a most important product of the

South and West, is the great and glorious progress of the *temperance cause*. This mighty movement, resistless as the onward tramp of an invading host, but with purposes fraught with mercy, instead of banners bathed in blood, has, within scarcely more than a single twelvemonth, effected an almost entire revolution in the manufacture of alcohol. Millions of bushels of corn and rye, for which, but a short time since, a large price was paid for the purpose of converting into poison for the human race, is now accumulated in the hands of the producer, or sent to eastern or foreign markets for sale. The effect of adding so large an amount to the former supply, has been to reduce the article in the hands of the farmer to a ruinous price. The question now is, can some new mode of using corn be resorted to, by which its production need not be diminished? The manufacture of sugar from the corn-stalk has been lately suggested, and urged with much apparent reason. It is certain, our fathers during the Revolution, when almost all imports from abroad were cut off, resorted to the corn-stalk for a supply of his syrup or molasses, and that it was from this source furnished in large quantities. Its conversion into *sugar* has been attended with some difficulty in the crystalizing, but this it seems is yielding to the results of science and experience. This is a project of much interest to us as a nation, as is shown in the great amount of sugar consumed and manufactured in this country. To supply this demand, there was imported into this country in 1840, besides the very large amount we produce ourselves, over 121,000,000 lbs. raw sugar, at a cost of \$5,600,000. That a portion of this is exported after being refined, does not alter the question, since we do not export it in a refined state to the countries from which it is imported; nor is it a contingent advantage acquired by us as a consequence of importing. The market for exportation would be just as good and as valuable to us, if we raised this amount within ourselves. With a great redundancy of corn, then, and as great a deficiency of sugar, it is certainly the part of wisdom, to test the experiment fully, and ascertain whether we cannot embark in this new branch of manufacture successfully. To allow our readers the full benefit of the information already acquired on this subject, we shall give in the next number, the most material part of a report made by Mr. Webb of Wilmington, Del., and we hope it may lead to fair and full trials in the undertaking.

SCIENCE, is refined common sense, the substitution of rational practice, for unsound prejudice.—*Davy*.

HARVESTING GRAIN.—We have made experiments repeatedly in the cutting of grain, before the stalk had fully ripened, and have universally found the benefit of the practice. The proper time for cutting, is immediately after a portion of the stalk turns yellow. When the straw assumes this appearance, which commences at the bottom and advances upwards, the sooner it is cut the better. No nutriment is conveyed from the soil to the grain after this change of colour takes place, and by harvesting it at this time, there is a positive increase in the *quantity* of the grain; the *quality* is better, the straw is more valuable; there is comparatively no loss by shelling, which always occurs, and frequently to a ruinous extent, when over-ripe; and there is a better chance for securing the crop.

In confirmation of these views, we quote from an experiment carefully made by Mr. Hannam, in England in 1841, the lateness of the season, and long period required for ripening the grain, are accounted for in the excessive humidity and coolness of English summers. He says "on the 1st of August, I cut a small portion that was quite green, that is, both straw and ears were in full vigor, and full of sap. Though the grain appeared perfectly formed, the chaff still adhering so firmly to it, that it was scarcely possible to separate them by friction in the hands. When separated it was large and plump, but so full of milk that the slightest pressure reduced the whole to a juicy consistency or pulp. This sheaf stood in the field for a fortnight, when it was housed. On the same day, August 18th, I cut another. The wheat was of course yet *green*, speaking positively, or *not ripe*, it we speak negatively—being what farmers commonly term *raw*—that is the straw, though appearing at a distance green, when examined closely, was of a hue fast approximating to a yellow; while, for a foot upwards from the ground, it was quite yellow. The ears too were more open, the chaff tinged with various shades of yellow and green, and the grain itself, when separated, soft and pulpy, but not near so full of fluid as before. The judgment of the farmer will, however, best tell him the condition of the wheat, both at this and at the preceding cutting, when I say, that in another fortnight the whole field was ripe. At the end of this fortnight, (September 1st), I housed the sheaf cut on August 18th, and which had remained exposed to the weather in the interval, and cut a third. This I have said was *ripe*, but by the term I don't mean that degree of ripeness when the straw breaks, the ears curl, and the grain shakes out; but that condition in which it is customary to commence reaping it, when the straw from the roots of the ears is uniformly yellow, and has lost all symptoms of vivid health."

"On the 14th of September the third sheaf was taken from the field and carefully preserved, along with the other two, till the 1st of November, when out of each sheaf I selected a hundred ears and put each parcel into a separate bag. The straw from each of these parcels of ears was preserved carefully."

The result of the several parcels are as follows:

	£ s. d.	£ s. d.
No. 1. prod 26.135 bus. per a. worth 7s. 7½d. 9 19 3¼.		per acre.
195¼ st. of straw worth 1s. 2.	1 12 7	11 11 10¼
No. 2. 30.131 bus. worth 8s. nearly	11 19 1¼.	13 7 3¼
168 st. of straw worth 1s. 2d.	1 8 1¼.	
No. 3. 30 bus. worth 7s. 8½d.	11 10 7	12 17 3
160 st. straw worth 1s. 2d.	1 6 8	

Showing a loss of 17. 5s. 5d., or taking No. 2. as the standard value, a loss of 13 per cent. in cutting too green, and a loss of 4 per cent. in cutting at the usual time.

It is seen above there is 4 per cent in favor of cutting grain which is just beginning to turn, over that which is moderately ripe, an item worth saving, but this difference will be increased from loss of shelling, from 10 to 25 per cent, if left till fully ripe.

HOME INDUSTRY.—The communication of W. S. F., on this subject is received, and though a well digested, able article, is inadmissible with our present limits. We have deemed it a duty to our farming interest, from which we had no right to shrink, to say as much as we have done, but having expressed our opinion on the general principles of the subject, we do not feel at liberty to pursue it. The few pages of our sheet are required *exclusively* for such matters as pertain to the farmer's peculiar occupation, and such as he can expect to find in agricultural journals only. It is the proper duty of the miscellaneous papers to attend to this subject in its details, and to them we must leave it.

COLORING CHEESE.—It was generally the practice some 20 years ago to color cheese with *what was called Annatto*. We are happy to say however, this absurd, unmeaning, filthy and abominable practice, has fallen into almost entire disuse in this country; but for the benefit of the few who may yet continue to use it, we are induced to expose the manufacture of this pigment, though we very much fear such will not be reached through the medium of *book-farming*. These are not the persons to be taught by *book-farmers*, yet we may hope to benefit them indirectly by such of their neighbours as have intelligence enough to take information from every source through which it can be obtained. From a foreign paper we glean some of the facts we detail below. *Pure Annatto* is the product of a plant indigenous to S. America, but recently cultivated to a considerable extent in the West Indies. It is a tropical shrub or tree which retains its leaves through the year, and produces its fruit in the season answering to our spring. It is a species of the Bixa, and its botanical name, Annatto Orrellana; grows about 10 feet high, sending out elm shaped branches, its flowers are of a pale peach colour, and the seeds when ripe, being surrounded by a red waxy pulp, from which the annatto of commerce, (such as imported,) is extracted. Francis Hernandez, in his *Nova Plantarum*, published in 1651, says, "the coloring matter is so tenacious, that when applied, it can scarcely be obliterated, and if mixed with urine is indelible: it yields a red colour for painters, possessing a dryness and astringency, assists in dysentery and restrains belly flux." Miller says "it is used by the natives medicinally in the bloody flux and disorders of the kidneys." Dr Hooper says, "in hot climates it is considered a useful remedy in dysentery, and is astringent and stomachic." Nothing is more obvious from the above quoted indisputable authorities, than that those who have the belly flux, the bloody flux, and disor-

ders of the kidneys, should take Annatto, though there are few doctors who would prescribe it to be taken then, *prepared in cheese*, or mixed with the detestable ingredients that poison it. It being a stomachic, however its use in the smallest quantity would not be so pernicious as might be inferred from the effects sometimes produced from the spurious article. It is the *imitation* we object to principally, as the *genuine* is in too much demand among the painters, to allow its general use by the farmers. The ingredients to make the *most approved modern Annatto* are, *old bricks reduced to powder, starch tumeric powder, train oil, potash, soft soap, quick lime, chalk and pipe clay, with a slight addition sometimes of the genuine vegetable extract.*—

Yet this "villanous compound" has been in so great demand in England, that it was computed 30 years ago, there was consumed in Cheshire alone what cost the farmers \$30,000 annually, and in Gloucester \$60,000

CUTTING HAY.—We intended giving a detailed article on this subject in the present number, but we have not room. We will say briefly, that *clover* should not be cut till a portion of the flowers have assumed a brown color, thereby allowing the more backward buds to develop themselves as fully as possible. It requires to be cut before the leaves have begun to wither. We prefer to have clover cured without exposure to the sun beyond lying in the swath, but those desirous of avoiding the hazard of showers, may facilitate the drying by opening the clover partially. The plan of curing is however preferable, which takes a longer time and exposes the clover as little to the direct influence of the sun as possible. After wilting in the swath for a short time, it should be laid into high cocks of small diameter, and there allow it to remain till sufficiently dried to put into the barn. The cocks should be made with the fork entirely, by laying one forkful on another, not rolling into a heap. This allows the air to circulate freely through the heap, and it will be cured without injury from sweating.

Timothy and Redtop ought to be nearly ripe before cutting; sufficiently so at least, that a part of the seed will fully ripen after being cut. There is less injury to the grass from exposure to the sun than from clover, but there is no doubt that if cured in the swath or cock like clover, it would be more valuable for feeding than when exposed to the scorching effects of our July sun. It would require a longer time to be sure, but if laid up trimly in cocks, it would scarcely suffer from rains, and it would expose but a small portion to the influence of dews.

Some of the natural grasses, such as are to be found in old meadows, require to be cut before the seed is matured, and with many it is an object to cut sufficiently early to secure a second growth of aftermath or rowen. But as a general rule, the sap of all grasses cut before the *sacharine matter* is pretty well matured, is thin and watery, the hay consequently is much less nutritious than in the more ripened grass, and is not as well relished by stock. The proper period for cutting is best indicated by the *gumming* of the scythe. When this is the case, it indicates a sufficient maturity of the sap.

When taken to the barn or stack, all hay should have a plentiful supply of salt; if quite dry, a peck to a load is sufficient, if damp or not thoroughly cured

half a bushel may be required, but we have never found more than this last quantity essential. The exact quantity it is judicious to apply, is what horses, or cattle or sheep, would require while eating the hay; but in applying it in this way, we secure the hay against injury from must, and cattle eat it much cleaner. We have frequently seen cattle leave the best qualities of unsalted hay to fill themselves from a stack of well salted, coarse, swamp grass.

A great saving is always made in raking hay on smooth ground by using a *horse rake*. The revolving rake already in extensive use, is the most perfect, but a simple one can be made by any farmer in a day or less, by taking a stick 4 or 5 inches in diameter, and 10 feet long, in which wooden teeth about 2 feet long, and 8 to 12 inches apart, are fastened in a line, by boring and wedging. These should be shaved to a blunt point, and slightly curved upward. It is managed by two handles projecting behind, and drawn with a single horse attached to a rope, fastened on either end of the shaft. This rake with one man, and a boy to ride if necessary, will perform the work of half a dozen men.

We wish our farmers would adopt the plan of *saving more grass seed*. For the last 2 or 3 years, it has been extravagantly high, from 12s to 18s a bushel. An acre of good Timothy will yield from 12 to 20 bushels of clean seed, and the hay, after taking out the seed, is worth all the expense of cleaning. At the ordinary price, 5s a bushel, it is a better crop than is usually raised. But the principal advantage to the farmer would be in raising his own seed that he would think he could afford to use it more liberally than he does when obliged to buy it, and by this means he would frequently double his crops. Thin seeding is the great fault of American farming.

AGRICULTURAL SOCIETIES.—We intend devoting a corner in our sheet after the present number, as a Directory to the different Agricultural Societies of the United States, a few in Canada, and three or four of the principal ones in England. As these are very numerous, we shall be obliged to confine our notice to the name of the society, place of the annual exhibition, and names of the President and Secretary. Any member of a society who subscribes to this paper, will on request, be entitled to such insertion gratis.

Some inquiries having been made, as to where letters should be addressed to the senior editor, A. B. Allen; we reply that he has returned from his Southern tour as far as Buffalo, N. Y., where letters will reach him, or if more convenient, they may be sent to our office in this city, and we will promptly forward them to their destination.

IF OUR SUBSCRIBERS or exchange papers fail to receive our paper regularly, they will please apprise us of the failure, as we intend in all cases to forward to all entitled to it.

OURSELVES.—One great source of gratification to us, as conductors of this Journal, is the prompt and handsome manner in which breeders and stock raisers particularly, have come forward to sustain us in our undertaking. We were apprehensive, as we had been formerly interested in this way, that a suspicion might exist in the minds of some, that it was our intention to favor particular breeds of animals. It has been, and will still continue to be our endeavor, always scrupulously to avoid doing so. We hope whatever experience in stock breeding, horticulture and practical farming we possess, will serve but to make us the safer guides. The subject of gardening, field crops, and the renovation and the improvement of soils,

will have the preponderance over stock in our columns. In assigning the first place to these, we coincide with a correct public opinion, but as great pains have been taken to produce superior crops the same effort should be continued in procuring improved animals to consume them.

We hope that as this journal is found to deserve it, our friends will exert themselves in its behalf, and as it is received and read by them, let it be circulated among others, that its existence may become generally known. It must be perfectly apparent to our intelligent readers, that at the very low price at which this paper is afforded, a large subscription list is essential to its support. This may be easily attained by a little exertion of our friends, from their neighbors and acquaintances.

Without expense to any individual's, county and agricultural societies, may do much to spread information on the subject for which they are formed, and at the same time sustain the agricultural press, by making all the lower premiums payable in agricultural journals. We shall soon have a handsome bound volume of 384 pages for one dollar, for this purpose. Specimen numbers will be sent on request from any friends, with the understanding that they be circulated. Always address through postmasters when possible.

We ask the attention of sheep holders, to the advertisement on this subject in our present number. Those having a surplus at this time, may find a way of insuring for them a handsome interest without trouble, expense, or sacrifice. The applicant we know personally, and have every confidence that any arrangement with him will be fully carried out.

ORIGINAL CORRESPONDENCE.

We are obligingly favored by our friends with a numerous correspondence the past month, part of which we have inserted entire, others we have been compelled for want of room to condense, while a few must lie over till succeeding numbers.

The sheep for J. D. of North Carolina are engaged, and will be shipped last of September, which is as early as we think will do for that climate. We regret he did not allow us more latitude in the choice; a little higher figure would have given him a superb article. Those however, we shall send, are very fine, and will afford a great improvement on what he has now.

We have not met with a Devon bull yet of the exact calibre for G. M., we admire his taste and can assure him it is just the thing for his mountain land. He will see that we advertised for the Ayrshires last month, but the breeders have not favored us with any communications. A friend of ours that we met in the north of England last summer, said he should bring some over with him this season; will G. M. wait their arrival?

Many thanks to R. N. A., for the southern peas, it is too late to plant them this year, but we will give them a trial next season. Also to D. K., for the cow corn. It is a curiosity, but must lie over with the seed peas.

We are greatly obliged to Mr. George Smith of Hamilton county, Ohio, for his flattering opinion of our present work. We have been favored recently with the reception of many such, but have adopted the rule of omitting them in all cases. We accept his kind offer with thanks. He says "the Bellevue Talavera Wheat, referred to in your April No. page 13, which took the premium at the Royal Agricultural show of England, I am well acquainted with, and can give you its history another day." (By all means let us have it.)

"I have known a 40 acre field yield 48 bushels to the acre, weight from 62 to 65 lbs. per bushel; it is a white large grain, and the quality superior to any other kind, and it will rise an inch higher in a 7lb. loaf of bread than the common sorts. I should like to have a barrel of it, if to be had reasonably.

"Your judicious observations with regard to sheep, met my views; you have seen my small flock of imported South Downs, also the Bakewells and Cotswolds. I think you will agree with me in opinion, that the size of each breed will improve just in proportion to their pasture in summer, and attention in winter.

"There appears to be an increasing inquiry after the improved sorts of sheep; no wonder, for they certainly are the best stock on a farm, and particularly adapted to this country."

We think so too, and indeed throughout the whole southwest. We have several orders to fill in the autumn. We wish they had been for thoroughbreds, and the *best of their kind* to be had. We thank Mr. S for the proffer of the English sheep crook, but as we have no use for it just now, and it would be troublesome and expensive sending us, as we do not possess the franking privilege, to *order it by mail*, he will please hold it in reserve for some friend at the west, who may not be so fortunate as to possess as tame sheep as his own pretty flock. We shall enquire at what price the Talavera wheat can be imported.

Mr. Nathan Loomis, of Dranesville, Fairfax Co., Va., with a long list of subscribers, suggests some valuable hints as to the preservation of our paper for binding, for all which he has our cordial thanks. We add his suggestions.

"Would it not be well for you to suggest to your subscribers, some easy method of preserving their numbers of the Agriculturist in a neat and clean state, to the end of the volume? Without proper care taken, such a work will become unfit for binding; but well kept, it will be as valuable in years to come as in the present year.

My way is, on receiving it from the office, to have the folds made in mailing, carefully ironed out, stitched, the leaves cut, and placed in a cover before any one is suffered to read it. I made a cover of book-board, with leather back and corners, finished with marbled paper, of suitable size to contain one year's numbers. I suppose thick pasteboard would answer very well. It is not necessary to fasten more than one

or two to the cover—and they need not be fastened together. At the end of the year the volume is in a fit state for binding, and the cover ready to receive the next. Should you recommend some plan for preserving the papers through the year, it may be a benefit to the children of some of your subscribers."

Mr. Charles W. Elliott, of Cincinnati, has written to us about Peach trees. He has just commenced a fine nursery, and thinks in the fickle spring of South Ohio that the Peach should be planted on a northern exposure to prevent an otherwise premature blossoming, and endangering the fruit to be cut off by early frosts. A belt of forest is desirable on the north to break off the cold winds, and he recommends little or no pruning other than cutting out the centre wood, thus forming a large bush, as we understand him, rather, than a tree, which admits the sun alike to all its branches.

We have received from Mr. G. W. Phipps, a plan of "Webb's perfect Bee Hive," which appears to be an admirable contrivance. He says in an accompanying note, "These hives are approved by the most experienced raisers of honey, who say they answer fully the purpose for which they are intended, they effectually keep out the moth. Honey collected in these hives is perfectly pure and white, and has sold as high as 50 cents the pound. The honey is collected without injury to the bees."

Mr. Beach, of Lebanon, O., has forwarded a cure for *Fistula* before it breaks out. "Take Podophyllum (May Apple) root when green and pulverise it fine; then boil in hogs lard till strong, and apply when cold to the swelling for a few days, but care should be taken not to let the liquid run down on the shoulder, as it makes the worst kind of sore. When the hair is about to come on, fresh butter or lard should be applied, and the hair will come on as well as ever, and the horse will not be shy in the withers afterwards. I have cured three in this manner that have remained sound for years."

An old friend, J. H. Hepburn, Esq., of Jersey shore, P. O., Lycoming Co., Pa., after some very complimentary remarks on our work, which, as in all other cases we must omit, and a list of subscribers for which he has our thanks, says—

"If you should be enquired of, for a very superior Durham Bull, and can find me a purchaser for Sam Patch, at a fair price, I will sell him next season. You are acquainted with his pedigree and the characteristics of the family from which he derived as well as I am. As to the properties of the stock of his getting, it is equal to any thing that can be produced, both for fine form and large milking. I can only however, speak of the milking from one heifer that has come in, and that at too early an age; but as she was a good size, and I was impatient to see what she would do, I let her to the bull early. She is now 23 months old, and is giving four gallons of milk, per day, grass fed. My other heifers out of him I will keep back, and when they are in calf, as it will be the third crop from him, I may sell him if I can get his value. Considering the deranged state of money matters, I will sell him for four hundred dollars."

As to the Bull to which Mr. H. refers, we can answer for his *breeding*, he having been produced from some of our thorough bred short horn stock, and though we have not seen him since a calf, we are confident he is a valuable animal, and well worth the price asked for him, even in these *excruciating times*. His progeny is sufficient recommendation for him.

The valuable letter of John J. McCaughan, Esq. will appear in our next. Its reception after our matter was made up, unavoidably excludes it from this.

For the American Agriculturist.

CINCINNATI, MAY 7, 1842.

GENTS.—Among the many little privations which the first settlers of this country were obliged to undergo, I recollect particularly with the younger portion of them, was the absence of the cultivated fruits that we left behind us upon emigrating, and you cannot imagine with what eagerness the children looked forward to the ripening of the indigenous ones of our forests and prairies. Nothing came amiss to us. The May apple, strawberries, raspberries, and blackberries, the different varieties of cherries, plums, and grapes, the persimon, pawpaw, and even the crab-apple and black haw in these days were not to be despised, thus giving us a pretty fair succession of fruits, such as they were, from May till October, after which the variety of nuts came in for the winter's amusement.

But among this different succession of wild fruits, the May apple and pawpaw stood and still stand pre-eminent. The May apple, or mandrake, grows in thick patches in the forest. Coming up in single stems from 12 to 18 inches in height, the fruit bearers of which branch from 8 to 12 inches from the ground, and throw off the stems obliquely. The leaves are of an orbicular form and lobed in the margin, with that uncommon mode of attachment in the petiole under the center of the disk that constitutes the leaf, which is from 8 to 12 inches in diameter, bearing a near resemblance to those very small parasols, so much in vogue among the ladies as shades.

From the center of the stem where it branches off, issues a single white concave flower, the fruit that succeeds is of a pale green color, the skin thick, the seeds numerous and immersed in a onesided large and pulpy receptacle. When ripe the apple changes to a yellow, is very fragrant, and of a pleasant sweetish acid taste, varying in size from a damson plum, to a medium lemon.

The pawpaw* is a plentiful undergrowth of our alluvial forests, and on a deep open, free, mellow loam in the upland. Its presence is an indication of a rich, warm soil. It varies in height and shape, from the straggling bush to the graceful formed conical tree, from 15 to 25 feet in height. The bark is smooth, of an ash color. The flowers put forth in the spring before the foliage, and are of a dark maroon, single bell-shaped, resembling the flower of the calicanthus, with this difference, that the ends of the petals are turned outward. They generally put forth from the stems solitary, sometimes, though not often, in branches, and hang down gracefully, which gives the bush a very pretty appearance when in full bloom.

The leaf is a rich green, from 8 to 12 inches in length, smaller in the middle, and tapering to a graceful point at each end. The fruit is smooth skinned, from 4 to 10 inches in length, resembling a cucumber in shape. Some are straight, others a little curved, rounding off bluntly at the ends. It sometimes grows single, sometimes in bunches, the seeds resembling in size and shape the Lima Bean, covered with a brown husk like the chesnut, are arranged crosswise

* Can any of our readers inform us whether this delicate wild fruit exists in the New England states, or in fact on any of the primitive formations of American soils? We have gathered it as far north as 43° on the banks of the Niagara river, but in the short summers that prevail there, the fruit is inferior in size and never attains the delicate flavor that characterises it in more southern regions. Where known as indigenous, it is well worth being transplanted to our gardens, combining as it does utility and beauty.

Francis Cleveland, Esq., of Portsmouth, Ohio, when at his beautiful farm last November, showed us a single bunch of the Pawpaw, numbering fourteen in the cluster, which is the highest number we ever heard growing together. We brought away one of them as a trophy, and have reserved it for the inspection of the curious.

in the pulp, and are set about one inch apart. When ripening, the skin turns yellow; some are most fond of it at this season; but the fruit is in its greatest perfection to my taste after a few heavy frosts, which change the skin to nearly black. The pulp is of an orange color, and of a mealy delicious flavor, and I can compare it to nothing better than a rich custard.

E. CARPENTER.

For the American Agriculturist.

MIDDLETOWN, O. June, 1842.

GENTS.—In consideration of the gratification afforded me by the perusal of your valuable journal, I feel obligated to furnish you an occasional contribution for its columns, should it not be the means of excluding matter of greater importance to your readers.

I propose at this time, to offer some remarks on the subject of electrical conductors, as a means of protection to life and property. It will not be presumed compatible with the design of a journal of this character, that I should enter into a lengthy philosophical disquisition of the subject, and I shall confine my observations to such as may be of practical utility. My humble object will have been fully attained if I can be effective in rendering harmless, an element, which at the same time that it is an important agent in performing the functions of animal and vegetable life, is occasionally so terribly destructive to both.

A conductor should be constructed of square bar iron, three-fourths of an inch thick, in pieces five feet in length, with one end turned at a right angle, six inches in length and drawn out to a fine point; and the other end have an eye turned upon it, of sufficient size to receive the point of the piece below, thereby completing the connexion of the different parts. The corners of the bar should be hacked with a cold chisel, at intervals of two inches. I say *square bar iron*, because the angles operate as an innumerable combination of points, and experiment has proven, that the electric fluid will be attracted from a greater distance, and more powerfully than by a round bar.

The lower extremity of the rod should be flattened to the distance of eighteen inches, split into three pieces, drawn to a fine point, and embedded three feet below the surface of the ground, and extended at a right angle, six or eight feet from the building, which it is designed to protect. Dry earth is an imperfect conductor; consequently the lower portion of the rod should be surrounded by some substance capable of absorbing and retaining moisture, that the fluid thereby, may when attracted, diffuse itself freely and rapidly in the surrounding earth. Charcoal is one of the best materials that can be employed for this purpose.

The upper extremity of the rod may be ter-

minated by a single fine point, which will be amply sufficient. An objection has been made with some appearance of plausibility, to a number of points, lest they should produce an explosion of electric fluid, when once brought within the sphere of their attraction. Various metals, such as steel, platina, copper, &c, are used for constructing these points, but perhaps none are more effectual than soft iron, which may be coated with gold leaf or not, as fancy may dictate. The coating is not an essential requisite, as experiment proves satisfactorily that oxidation does not impair the attracting property materially.

The conductor should be elevated according to the following principle, viz, that a conductor will effectually protect an area of four times the diameter that it extends, above any other point of attraction. For example. Suppose the extreme point of the rod to be ten feet above the chimney tops, it would secure a building forty feet square.

A matter of much importance is a proper method of attaching conductors to the buildings, which may be accomplished in the following manner. Take a sufficient number of pieces of well seasoned wood of the following dimensions; fifteen inches long, four inches wide, and two inches thick, with a hole through one end for the transmission of the rod. These should be well boiled in linseed oil, thoroughly baked in an oven, and covered with several coats of copal varnish, which will render them perfect nonconductors. They may be secured to the building, by removing a portion of a brick and driving them into the wall. Large buildings should have a conductor erected at each extremity.

Conductors should not be painted or varnished, and to make "assurance doubly sure," may be surrounded with pieces of glass, where they pass through the supports. Yours, &c.

ANDREW CAMPBELL, M. D.

The suggestions of our esteemed correspondent are valuable, especially at this season, when thunder showers are frequent, and the humid gases from the newly secured crops, renders barns peculiarly liable to injury. He has well stated the important influence of Copal Varnish as a non-conductor, as the Shellac which is a principal ingredient of it, is the first in the list of non-conductors. Coating the electrical points with gold is preferable to the naked iron, for not only is it a better conductor than iron, but in addition it is never subject to oxidation. Recent experiments show that electricity is conveyed in proportion to the extent of surface of the conducting agent, and consequently a number of wires slightly twisted or confined together, afford a more extensive escape for the fluid than a single rod. We subjoin a list of the best conductors in the order of their respective conducting powers: 1 copper, 2 silver, 3 gold, 4 iron, 5 tin, 6 lead, 7 zinc, 8 platina, 9 charcoal, 10 plumbago (black lead), 11 strong acids, 12 soot and lamp-black, 13 metallic ores, 14 metallic oxides, 15 diluted acids, 16

saline solutions, 17 animal fluids, 18 sea water, 19 water, 20 ice above 0°, 21 living vegetables, 22 living animals, 23 flame, 24 smoke, 25 vapor and humid gases, 26 salts, 27 rarefied air, 28 dry earths, 26 massive minerals.

The non-conductors in their order are: 1 shellac, 2 amber, 3 resins, 4 sulphur, 5 wax, 6 asphaltum, 7 glass and all vitrified bodies, including diamond and crystalized transparent minerals, 8 raw silk, 9 bleached silk, 10 dyed silk, 11 wool, hair and feathers, 12 dry gases, 13 dry paper, parchment and leather, 13 baked wood and dried vegetables, 15 porcelain, 16 marble, 17 massive minerals not metallic, 18 camphor, 19 india rubber, 20 dry chalk and lime, 21 phosphorus, 22 ice below 0°, 23 oils, the densest being the best, 24 dry metallic oxides. Ed.

For the American Agriculturist.

New Orleans, May 8th, 1842.

GENTLEMEN:—In answer to your inquiries concerning the Herba Hispania, the grass of Cuba and the grape which I have growing on my estate, I will as a memorandum only, give you a hasty sketch.

The Herba Hispania is an Italian grass. Its value in a soft, sandy soil, I learn from Dr. Cartwright of Natchez, is worth one ton per month per acre during the growing months, and he is of opinion in our latitude its vegetation would never cease.

The grass of Cuba which I have growing on the sea shore, my daughter brought from Cuba adhering to the root of a Banana plant. It has spread over a large surface, and by pulling off the tops or leaves of the grass, and setting it in the earth or sand, it has spread over a considerable surface of the white sand of the sea shore. It delights in a dry arid sandy land (if I may be allowed to call such, land,) and grows with great rapidity. The more firmly pressed the more rapid the extension. The sward soon becomes about 3 inches high, and as thick as the growth of wool, and if a dime is dropped in it—it is very doubtful if it may be found again, as my own losses fully prove. The Plaster of Paris seems to have a very happy influence upon it, and I should suppose that the lands of New Jersey would with this grass make very fine sheep walks.

The grape I obtained from the vicinity of the Fort, built by the French, who came to the sands of Biloxi some 120 years ago, when invited by the Mississippi scheme got up by Law, the great financier and humbugger of Paris. I have no doubt, it is the grape from which that rich Burgundy was made in days bygone, and of which so much has been written. The vine has somewhat of a rough bark, is of very rapid growth, the most prolific bearer that I have ever seen, and of the largest branches. The grape itself is smaller than the Madeira, perhaps not more than half the size, as closely juttet together as a painting, and

more resembles in appearance the figure of a bunch of grapes than any idea that I can express. The colour of the fruit is purple, ripens equally throughout the bunch, and is so juicy dripping, that when eating, you are in constant apprehension of injuring your clothes. The great superiority of their grape over all others that I have seen, is its full bearing, perfect fruit and delightful flavor. Upon the sea shore, immediately exposed to saline moisture and unprotected from the breeze, I was advised by those who lived in Florida, that I should certainly not succeed in my efforts to rear grapes. That they would ripen imperfectly, and that many would be faulty. I have found the reverse, and now upon one of my vines, not three years old, I have fifteen hundred bunches, every one of which promises to be perfect. The dry rot which affects all other grapes has never yet made its appearance upon a single bunch. Excuse this hasty scrawl, and if upon perusal any thing may suggest itself, I will take a pleasure in a leisure moment to answer you more fully and satisfactorily, in haste yours

W. H. TEGARDEN.

We regret exceedingly when at New Orleans, that we could not have accepted Doct. Tegarden's polite invitation, and accompanied him to his plantation on the route to Mobile, and visited his grass fields and grapery and many other things, that we should have doubtless found there besides well worthy attention. We shall look for further communications from him on southern products with interest.

For the American Agriculturist.

Llangollen, Ky., May 20th, 1842.

GENTS:—There are many precepts and practices in Agriculture, which are thought to be of modern date, which were inculcated and adopted even before the Christian era. In this antediluvian age, it has become fashionable to neglect classical literature, especially with those who are totally unacquainted with it, and consequently incapable of appreciating it. And the young people receiving their impression from such, think that in reading the ancient classics they would acquire no useful knowledge, but merely the words of a dead language, which like dead capital, would remain useless to them. They think it would be throwing away their time to learn even Latin, while they waste more time than would be necessary to acquire it, in reading the trashy works of fiction with which the periodical press inundates the country. Very few even read translations from ancient authors. They either complain that they are too dry, or assert that more instruction can be obtained from modern works on the same subjects, or from others of greater utility—practical utility, that is the cant term, I believe. But on enquiring, you will find that they have never read, or do

not understand these vaunted works. By your leave I propose to show that this anti-classical heresy is the cause of much ignorance even in Agriculture, the most utilitarian of all human pursuits. Much agricultural knowledge is to be had from the perusal of Virgil's Georgics alone. Knowledge too, that is thought to be the fruit of modern discovery. All this is *clear gain* to those who read the Roman language, either to discipline the mind by intellectual exercise of the most invigorating kind, or to acquire that etymological instrument which enables them to read and understand our own language, and all those of southern Europe, in the shortest time, and with the greatest advantages.

It is true that modern Chemistry, Vegetable Physiology, and Mechanical science have given us a better knowledge of the elements, of the constitution of plants and their mode of existence, better agricultural instruments and machines than the Roman cultivator of the soil possessed. And we may by the aid of induction, have arrived at some mediate and secondary causes which he never reached. We may have ceased to doubt in many cases in which he if now living, would still doubt, I do not say whether wisely or not; still he had much practical knowledge, derived from experience, which modern science *has only confirmed*, but which modern ignorance attributes to modern discovery. It has not even been vamped up by us. This I will now proceed to show from the original. The first important precept relates to Ploughing. This was known to be the prime operation in preparing the soil for all crops—the time and mode of great consequence; hence Virgil gives them the first place. Georgica, Lib. I linea 42.

*Vere novo gelidus, etc.** "In early Spring when melted snows glide down the hoary hills, and the crumbling glebe unbinds itself by the zephyrs;"

Observe the qualification and caution in the last line, when the mouldering clod falls to pieces—not when the furrow slice turns over unbroken and without *re-solution*.

At prius ignotum ferro, etc. "But before we cut an unknown plain with the coulter, let it be our care to learn the winds and various quality of the climate, the ways of culture practised by our forefathers, and the genius and habits of the soil."

Not a furrow is to be run before the *climate, nature of the soil, and previous modes of its cultivation* have been *carefully* ascertained.

Et quid quæque ferat regio, etc. "What each country is apt to produce, and what to refuse." What more on the adaptation of different soils and climates to different productions, do we find in any modern book, than is here

compressed into a single line? The deep and early ploughing of stiff, argillaceous land, and the later and lighter ploughing of siliceous, sandy or granitic poor soils, and the rotation of crops are insisted on by the Poet. Even the kind of crops in the rotation is expressly mentioned—the very best known even now. *Pingue solum primis*, etc. “Let your sturdy steers turn up a soil that is rich forthwith, from the first months of the year:” *At si non fuerit*, etc. “But if the land be not fertile, it will be sufficient to raise it up with a light furrow, even so late as towards the rising of Arcturus.† You will likewise suffer your lands after reaping to rest every other year, and the field to harden and be overgrown with scurf. Or changing the seasons, you will sow there yellow wheat, whence before, you have taken up a joyful crop of pulse, with rattling pods, or the vetch’s slender offspring, and the bitter Lupine’s brittle stalks.” The exhausting effects of flax, oats, &c., are alluded to. *Urit enim lini*, etc. “For a crop of Flax, burns the land, as also oats and poppies.” No greater advocate of abundant manuring than Virgil, is to be found in China or in Flanders, much less in England or the United States.

Ne saturare fimo, etc. “Be not backward to saturate the parched soil with rich dung.” And Liebig has lately taught us scientifically, only what the Roman husbandman knew experimentally of the value of *Ashes on exhausted lands*. The latter it is true knew nothing of the Silicate of Potash, or that it is a constituent of those plants which alkalis enter. Yet he availed himself of its use and inculcates it on others.

Effatos cinerum, etc. “Or to scatter sordid ashes upon the exhausted lands.” The burning of stubble on sterile fields, and the theories popular in that day as to its *modus operandi*, are mentioned; cross ploughing, harrowing and dragging hurdles in the preparation of lands for wheat. Thorough pulverization and cultivation only, can ensure the smiles of Ceres, the goddess of the golden grain. On him her gifts she showers.

Qui exercet frequens tellurem. “Gives it frequent exercise, and rules his lands imperiously.” Draining, irrigation, the feeding down of too luxuriant grain, and the right time, the protection of crops from birds, &c, the injurious effects of weeds and shade, are all mentioned. The medication of seeds, before sowing, with nitre, and the lees of oil too. Have we any better preparation even now?

Et nitro prius, etc. “I have seen many sowers artificially prepare their seeds, and steep them first in nitre and black lees of oil.” Stealing a march on grass and weeds by hastening the germination of seeds before planting, by

soaking them in tepid water was practised even more than at present, although so labor-saving a practice, especially in gardening, and with root crops. The selection of the *best seeds* with the view of improving the quality and increasing the quantity was deemed all important. *Et quamvis*, etc. “And though to precipitate them, they were soaked over a slow fire, selected long and proved with much labor, yet have I seen them degenerate, unless human industry with the hand culled out the largest every year.” The necessity of counteracting the constant tendency to degeneration is illustrated by a figure of great force and beauty. *Non aliter*, etc. “Not otherwise than he who rows his boat with much ado against the stream—if by chance he slackens his arms,” &c. Orchards, vineyards, meadows, bees, stock of all kinds are treated with ability. Even the arrangement of trees in the *Quadremium* and *Quincunx* is taught. Need I multiply instances? Is not my position proved? If the classics, instead of Bulwer and Co. were read, depend upon it Sirs, we should have young men of better discipline and stronger minds, more capable of reasoning and judging than the *mustachioed* Miss Molleys, who infest both town and country. *Nati cosumere fruges*, on a level with pug-dogs and pet monkeys.

Very truly Sirs, your obedient serv’t.,

JOHN LEWIS.

* We insert a literal translation for the benefit of those of our readers who may not be familiar with the Latin tongue.

† About the middle of September.

For the American Agriculturist.

Farm Buildings.

Next to good soil, and enclosures, nothing is more important to a well managed farm or plantation than good buildings. No matter what the climate be, if any where above 36° of north latitude, *good shelter* for beast, as well as man, is a most important requisite. Without shelter the farm crops are liable to destruction, and domestic animals to casualty, disease, and oftentimes death. Deprived of it, the farmer of the south, and lower Mississippi valley, may get along with his *stock* tolerably well, but those of the northern and middle states cannot dispense with barns and outbuildings short of an annual loss of at least twenty to fifty per cent., on their actual cost and repairs. They are in fact an item so indispensable to *good husbandry* that an essay of some pages on the subject may not seem inappropriate in a paper aiming to encourage all permanent improvement in the agriculture of our country.

Farm buildings may be divided into two classes: the useful and the ornamental. With

the latter I have at present nothing to do. Their discussion may be deferred to a more fitting season of relaxation and amusement. *Utility* is my present object. Of useful erections there are two kinds; the dwelling, for the accommodation of the farmer himself, his tenants, or laborers; and the outbuildings, for the storage of farm crops, tools, machinery, accommodation of the cattle, and other stock, &c. &c. And as these latter are of the greatest importance with all good farmers, after the family is comfortably housed, I shall first treat of their structure, and as incidental thereto, and to their uses, make some remarks on the proper care of stock in general.

In the outset, it is as well to remark that in America where the *basis* of our agriculture is directly the reverse of what it is in the countries of Europe. There land being dear and labor cheap, while here land is cheap and labor dear, the least possible sum that can be expended in the manual labor of the farm *consistent with a productive result*, is, or should be the main study of the successful farmer. The American farmer who annually pays larger labor bills grows poor, while the European who does not expend much labor on a comparatively small farm usually grows poor also; and it should therefore be the aim of the American to make all his permanent expenditures which are to constitute the *dead capital* of his farm with an eye not only to cheapness in construction, but to the saving of labor in its use. No *general* rule of building can be laid down for a country so diversified in climate and material as in North America: but main hints and outlines may be given to govern the ordinary construction of outbuildings for thrifty husbandmen. As a general proposition, however, the buildings should be of wood, well framed, and covered with boards and shingles, and well set up from the ground, either on a stone walled cellar, or underpinning; usually the latter, for but few barns or outbuildings require much cellar room. But every building should be well set up from the ground, and on an *indestructible* foundation, that being truly, as well as literally the basis of all real economy in this department. As to their location, that depends so much on circumstances; the shape, locality, the purposes to which the farm is devoted, and many minor considerations, that the good sense and discretion of the proprietor must decide that question. Were I to locate my buildings on the farm, proximity to the road would have little influence on my choice. Access to good water, a central position on the farm, by which every part of it might be easily reached in getting in the crops and in superintending the labor, would be the main object; while the passing

on the highways and the neighborhood gossip would be the last requisites I should consult. Your true Southerner, and Pennsylvanian, and South Western farmer nestles down simply in a convenient spot on his estate; let the travelled highway go where it may, and there he awaits the call of the public, attending solely to his own domestic affairs, content to see what comes upon him, hieing out from his domicile when occasion demands it; while your inquiring Yankee as universally plants himself on the main road, determined to see every thing as it passes, and dreading nothing so much as to be shut out from the gaze of the passer by, and not to know as it occurs, every thing of public import as well as of private rumor. I once knew a characteristic, yet perhaps rather extreme instance of this propensity to building every thing on the highway, in a worthy old gentleman, long since deceased, in New England. He was a considerable farmer, but a great talker and story teller; and in constructing his buildings set his house, woodhouse, &c. on one side of a road not over forty feet wide, and on the very side of it too; while his barn, sheds, corn-house, and even his well, barn-yard, &c. were directly opposite, and on the exact line of the road also. True, his farm lay on both sides of it, but not in equal proportions—this to be sure was a mighty inconvenient method of placing his buildings, having to cross the road, often a muddy one, for every bucket of water; but it enabled the family to see every body that passed, and was, as the old gentleman one time remarked to me, “handy to hear the news and know what was going on in the world.” So absorbing had this propensity become in his old age that he had a shaving horse under a great buttonwood tree on the road-side near his house for several years before he died, where in warm weather he could sit and shave shingles a great part of the day, and have a friendly gossip with almost every traveller who came along and would loiter time enough to hear a story from the old gentleman. Ah, well! he was an excellent man; and although he had his buildings altogether too near the road, I wish that every body was as good and as virtuous as he. There were no rail roads in those days, and people were not wont to hurry through the world on their travels in such chain-shot expedition as they now do, going over more ground than they even see, and with a rapidity that seems like the shadowy remembrance of a dream.

But the yankee has some contrivances to counterbalance his roadside propensities satisfactory to himself, no doubt; and as I do not propose to reform the inherent or conventional habits of the people, I have only to do with the structure

and uses of their buildings, and to these I return.

Assuming that the farmer has his estate well cleared, and in condition to receive the necessary buildings for its accommodation, they should consist of whatever is required to protect its crops, and shelter the stock from the inclemency of the seasons, as well as for feeding purposes. These usually are, a granary or corn house, or cribs, or both; wagon and tool house, work-shop, &c, a barn with sheds appended, to the requisite extent. To these may be added a milk, or cheese room, piggery, &c, &c, as the business of the farm may require. The location of all these may be a matter of taste or fancy with the proprietor; but they should be convenient to the house, and at such distances and points as to be easily reached, and rapidly inspected. They may, or may not be built adjoining each other, as convenience requires. Their immediate proximity will more endanger them from fire by communication than if built apart in groups; but in all cases the barn and cattle sheds, sheep fold and stock buildings should stand detached and at a reasonable distance from the dwelling and smaller buildings, that in any emergency they should be out of danger from each other by conflagration. The wood-house, and milk and dairy rooms should, and usually are appended to the dwelling; and the piggery or hog pen, if not a large establishment, should not be at a great distance, as that usually receives the wash of the house. In this last should always be a cooking establishment, in the Northern states, for the greatest economy of fattening pork. In its rear ought to be a comfortable yard for the hogs to range at proper seasons. Of the fashion of this building one may indulge in many varieties, but I would suggest the general plan of a main entrance at the gable end by a hall running through its entire length, with the stalls or pens on each side, and the swill or feeding troughs next the passage. These preparations save great time and labor in feeding, and promote quiet and repose in the animal, without which no creature will thrive rapidly.

This building should be at least twenty feet in width, to admit stalls on each side of the passage, or hall, and any length required for the number of swine to be fattened. The height too may be as great as fancy or convenience may demand. Over head, corn or other grain, or various farm products may be stored, and the room thus acquired will always be valuable.

In addition to the other buildings, every farmer should have a work-shop, with a carpenter's bench and vice in it, and a tolerable set of tools with which to repair and construct various implements as his ingenuity or wants may suggest. It will save many dollars annually to his

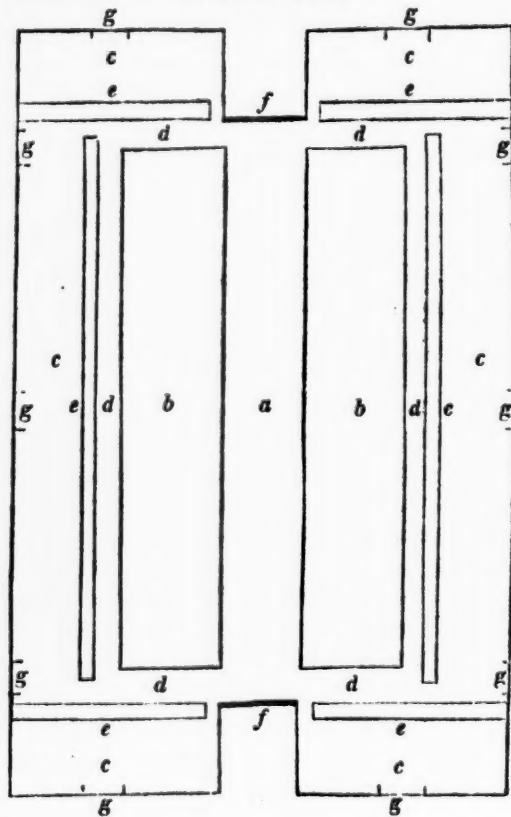
expense account, besides employing many otherwise idle or unprofitable hours in amusing and useful labor. A small forge and bellows may be added, with an anvil, and a few blacksmith tools. These frequently come handy in the necessities of the farm, and I have often known excellent farmers who had also acquired a tolerable blacksmith's and carpenter's trade by merely attempting to patch up their own implements of the farm or plantation. This class of buildings may be always cheaply constructed at a mere nominal expense.

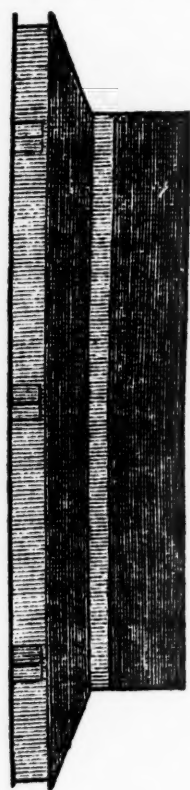
The barn and sheds, however, are the main structures for the farm. *These are indispensable in all economical husbandry.* Although the stacking of hay and grain is largely practiced in some parts of the United States where the winters are mild, yet in such localities as will afford buildings at moderate expense, the policy of a general out-door storage may well be questioned. Great and indispensable waste both of labor and crop, is the certain consequence. To this must be added loss by disease in animals, to say nothing of the toil and vexation incident to those having the ownership and charge of the farm products and stock. From my own observation of many years, I am thoroughly satisfied that the annual loss of grain, cattle feed, and flesh by casualty, &c, cannot be less than twenty-five per cent. greater than what is sustained in the same material where ample buildings for these purposes are in use, to say nothing of the quietude and comfort experienced both by man and beast; and the outlay of five hundred to one thousand dollars on a farm of one to three hundred acres, on which the interest, with the depreciation may be fairly estimated at ten per cent. can hardly be better appropriated. It is very true that many farmers strongly oppose winter shelter for either stock or fodder. Every thing is stored out of doors; and unless the food can be strewed over an open field, or in a filthy yard, where the suffering and quarrelsome animals can drive each other over it, trampling it into the mire, eating a small portion, and destroying the residue, they consider it a departure from the *old plan*, and an innovation not to be tolerated. To a skilful husbandman, and one who admires neatness and system, this practice will be sufficiently condemned. There is, however, one exception to out-door feeding which is not only excusable, but highly to be commended in certain cases. In meadows worn down by neglect, or on barren knolls, in localities where snows and hard frosts prevail through the winter, hay or other fodder may be stacked, and while the frosts prevent the ground from poaching by the tread of the cattle, they may be driven to these stacks and fed with the hay, straw or stalks scattered about the field. In clear cold

weather the stock will eat their food tolerably clean and the manure left after them, if scattered in early spring with the dung beetle, will be of the greatest service to the land as a top dressing. This plan too, is a saving of labor, when *properly* done, but it should never be pursued on *soft* grounds, and in rainy or violently snowy weather. But even in these cases, it is questionable whether a sort of crib made of four upright pieces of scantling, each four feet long, set upright, with three boards of six or eight inches in width, ten, twelve, or fifteen feet long, and some four feet wide strongly put together with nails, the end of the posts projecting above the boards or bars, six or eight inches at top and at bottom, so as to stand either side up, and movable by merely capsizing, would not be much better than the scattering method—I think they would—for by this latter way the food is confined within the crib out of reach of the feet of the animals, and is accessible either from over the top, or through the spaces of the boards forming the sides and ends. These articles are also of great convenience in barn yards, where hay or straw is fed, and the cattle kept in open sheds, and may be used for all kinds of stock alike. They are easily transported to any part of the farm, may be readily thrown together in piles under the shed, and thus preserved many years. They are cheap—cheaper indeed than racks, and much better too, for racks admit great waste by drawing the fodder through the gratings. Young stock, store cows and oxen, &c. will winter sufficiently well in open yards with comfortable sheds; but all *choice* animals, milch cows, laboring oxen, fattening cattle, &c. should each be accommodated with a warm comfortable stable, well secured in the stall with each a separate manger of its own, where they may be fed more or less, and cared for in a proper manner. Considerable experience has entirely convinced me of the superiority of thus arranging the feeding of stock. Those fed in stalls, where they enjoy perfect quiet, will thrive on less food than others in the open fields will grow poor upon, each being in the same condition when driven into winter quarters. If a creature be ailing, due care and nursing may be given it, when if running at large with the herd, it could receive little or no attention, and great loss of flesh, if not death would be the consequence. By the stabling system also, no loss at all of *valuable* food need occur, as all can be saved and fed to some sort of stock or other. In a large stock, I am aware that the stabling system cannot be economically extended to *all*; but the *sheltering* system can, and it should be adopted by every systematic and careful husbandman. These remarks have been sufficiently extended, and I now proceed to the

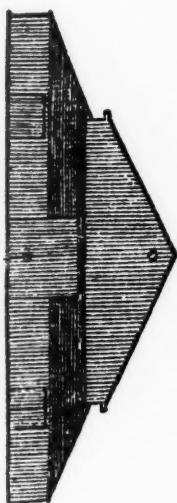
PLAN OF A BARN.—The ground plan must depend something upon the position where it is to be located. If on a side hill, it may have an under ground room, or cellar, or stables. This however, is generally very expensive, and only resorted to for some especial purpose, or to gratify a peculiar taste or convenience. My plan is that of *utility* solely: to obtain the greatest possible profit at the least expense. I therefore propose that for the greatest convenience it be placed on either elevated ground where the drainings from it can be carried on to the adjoining cultivated fields, or on a gentle slope having the same advantages. Ample cellar room for storing roots and other soft crops is not only convenient, but almost indispensable, and may be made beneath a part of the barn, or under an adjoining building; but wherever it be, it should be sufficiently drained, and thoroughly guarded from frost. In the year 1835, finding it necessary to erect several barns on sundry tracts of improved land, after much study and observation, I adopted a plan dissimilar from any that I had yet seen, and comprising, as I thought, more convenience, saving of labor and economy in storage, than any other plan. Two of them are one hundred feet long and fifty feet wide in the main upright parts, and the third, fifty feet long and forty feet wide. They were all upon the same plan essentially, and I here give that of one of them figured and described in a letter to Judge Buel in the year 1835.

Ground Plan.





Upright—Side View.



Upright—End View.

Explanation.

- a. Barn floor, 14 feet wide.
- b. Bays for hay and grain, 18 feet wide and 92 feet long.
- c. Stables for cattle and horses, 13 feet wide in the clear.
- d. Passages to stables, 4 feet wide.
- e. Mangers for feeding, $2\frac{1}{2}$ feet wide.
- f. Great doors, 14 feet wide.
- g. Stable doors, 5 feet wide, double.
- Length of Barn, 100 feet.
- Width of do. 50 do.
- Posts of do. 18 do.
- Pitch of roof, $12\frac{1}{2}$ feet.
- Height of leanto posts, 7 feet.
- Pitch of stable roof, 8 feet.
- Length of side leantos, 100 feet.
- do. end do. 38 do.

The barn is framed as if to stand alone, omitting the lower girt at the ends on each side of the large doors. The leantos are then framed on the barn in the simplest manner—the passage being round the main body of the barn, excepting at the ends, where the passage is in the main barn, and the leantos there only 16 feet wide, and the manger is fitted up to the main barn. Only one passage is made to go into the short stables at the ends. Stalls are made seven and a half feet wide and boarded between, and each ox or cow is tied next to the partition side of the stall, which prevents their getting together, and saves much room. The doors are sufficiently wide to drive in a pair of oxen yoked, and large spikes are driven in the plates all round the stables to hang harness, yokes and chains upon.

The bottoms of the mangers are raised ten inches from the floor, and laid double. The sides of the stable are also battened with thin boards, inside, which makes them perfectly tight and warm; windows with sliding shutters are made in the sides, to throw out the manure.

Girts run parallel with the main floor in the posts, across which are laid poles, nine feet above the floor, on which hay or grain can be piled up to the peak.

This barn will hold 200 tons of hay and 46 yoke of oxen, or 100 cows or horses. If only ordinary stock is kept, the *long* leantos need be only 18 feet wide, and the *short* ones 14 feet. Granaries can be partitioned off from the bays or stables as may be convenient. If a thrashing machine is used, a part of the stable can accommodate it. Its whole expense, finished complete, is about \$1,500.

On this model, barns of any size may be built, and I am well satisfied that, according to the room required, it is altogether the *cheapest* in cost and simplest in construction of any plan I have seen. If a less proportion of stable room be needed, it may be omitted where convenient.

The passages around the ends of the bays and in front of the mangers, are for feeding the cattle, every thing being put in front of them. The passages are wide enough to carry hay, and when the bay is partially fed out, the hay may be thrown directly into the passages.

I would on no account, store hay or other material over the cattle, under the stable roofs, although there is considerable room, as I am satisfied from experience, that there is not too much space left for ventilation.

The floors are lined with thin refuse boards, excepting a part of the stables, it being my wish that *nothing be lost*.

This barn is placed on level ground, having no side hill convenient on which to place it.

This, it is true, is on a larger scale than is needed for an ordinary farm; yet many farms require as much and a larger quantity of barn room. If every thing be saved and housed that can be profitably expended in the feeding of stock, much more shelter is required than is supposed. If the farm be small, the size of the barns should be graduated to its wants. This plan has been closely examined by many farmers of great experience, and pronounced to be the best they have seen. The utmost possible economy of room is made for packing the hay and grain, and the stables are mere leantos, made of light frame, attached to the sides and ends of the main building. If wood covering for either the sides or roof of boards and shingles are not to be obtained, they may be made

of thatch. The bodies of the building may even be laid up of logs and covered with slabs, so that they be well chinked and comfortable. It is true that there is some waste room over the cattle in the stables, but no more than is wanted for ventilation and to pass off the respired air, which is deleterious to their health. The letting in of fresh air in cold and stormy weather, through the sides of the building, gives them colds and disease, to which they are as liable as the human family. But even if only sheds are wanted, I am satisfied that they are better to be attached to the sides of the barn in the way these stables are, than in any other, being more convenient, and allowing the stock to be fed in them with greater economy. The stables attached to this being for the accommodation of working cattle mostly, are wider than need be for an ordinary stock, and may be made narrower. But among all other plans, I have found none which combine the requisites of cheapness, economy of feeding, and storage like this. It has withal an appearance of snugness and comfort about it that greatly embellishes the farm.

If, however, it be preferred, the posts of the stables may be raised to nine, ten, or twelve feet in height; it will give room for considerable cheap storage of straw for bedding, or coarse fodder for the stock. In ordinary cases, the two end doors of the stable in the side view can be omitted, as one, the centre door, is sufficient. Open sheds, if wanted in addition, can be extended from either side of the leantos or stables to any length required for shelter to the out-door stock. One of these barns has three long sheds attached for this purpose. There is another advantage in attaching cheap stables to the sides or ends of the main barn which is seldom thought of. The stale and droppings from the different animals, by saturating the lower timbers of the frame, cause early decay, and in a few years, if within the body of the structure, it requires new sills, sleepers, &c.; but in this plan, they may be replaced and the barn itself remain in sound condition. The stables also being made of lighter timber, will cost less than in the other way, and in the long run prove much less expensive. These barns have now been built, and in constant use for nearly seven years, and are pronounced by those having the immediate care of the stock and farm products, and who have used them for the storage of grain, &c. (and a great quantity has been stored in them,) superior to any plan they have ever known. One active man, with a boy to assist in cleaning out the stables, will tend a hundred head of cattle in the stables of this barn above figured; or two men will easily take care of this 100 head, and another 100 in the yards and sheds. About ninety

neat cattle have been wintered at one of them the past season; half of their number, choice blood stock, and nothing but hay and straw fed them. Thorough-bred Short Horns, several of which went into winter quarters in low condition, have gained in flesh, and are now going into the spring pastures in as high condition as is desirable. In relation to the barn yard, every precaution should be taken to prevent wasting the deposits within it, and as I hold it to be the best plan in most cases to remove the manure as early in the spring as practicable for application to the farm crops, little waste need accrue by evaporation or drainage. I have said little of sheep or horses in connection with the barn and its appendages; but if these animals, as they usually do, form a part of the farm stock, the horses need only have appropriated to them the same space or privileges as is given to the neat cattle; and the sheep may be either fed in separately enclosed yards and sheds, or in such exclusive appropriations as they require. The general plan may still remain the same. These barns together with some others since erected, are still under my charge, and one of them being built of logs 40 by 36 feet, several years since, by the then occupant of the farm, essentially after the same model, with stables, &c., and in a very cheap way, still answers an admirable purpose. Another was built principally for the storage of grain crops in the straw, without stables, 60 by 45 feet; but all the occupants concur in opinion that the original plan, for all purposes, is preferable. The saving of labor in the barn duties, a *great item*, is admitted to be very important.

In regard to the watering of farm stock, somewhat different opinions prevail among good farmers and herdsmen. Some insist that water should constantly flow into a trough in the yard, where practicable, by pipes from a neighboring spring or stream; while others prefer to drive their animals some little distance for their water, thus giving them that exercise so conducive to full health which they would not take when the water is within the yard. From my own experience, each method has its advantages. For *milch* cows, and for them only, would I care for a fountain in the yard. Often drinking may assist in an increased degree, the secretion of milk, although I fancy that green roots during the winter given daily, in addition to their hay or straw, will be much more efficient agents in this matter; but for the necessary purposes of deglutination, or of moistening the food, the use of water once or twice a day during the foddering season, is abundantly sufficient. Working animals require drink at least twice, or three times a day. During the past winter, and up to this time, our own stock have had water but

once a day, being turned out of the stables and
ward about ten o'clock, A. M., after feeding all
they required of dry food. Their water, in
abundant quantity from the Niagara river, is
within a dozen rods of the yard. They then
proceed leisurely to the spot and spend some
time in sipping and drinking, which they do
heartily; after which, they leisurely return to
the yard; and although in the early part of the
winter driven again to the stream before night,
refused to drink again. Finding that one wa-
tering was sufficient, no more has been given to
them, and a healthier, finer wintered stock of
cattle I have never seen. Not a sick day has
accrued to a single one of them, nor a loss of
any kind, while several of the cows have given
milk and suckled calves during a part, or through-
out the whole winter; these last, however, have had
a little extra feed. This method of watering
has some years practised, and with uniform
success. A year and a half since, I had some
fine Short Horn stock procured from a distance
late in the fall which were in low condition, and
as I wished to give them some extra care, kept
them at my own residence instead of sending to
the farm with the other stock. In the stable
yard is a water-butt constantly supplied with
pure spring water where they could drink at
any time; but after taking in their morning
draught, which they did in large quantity after
leaving the stables, they seldom repeated it dur-
ing the day, or noticed it in any manner. No
animals enjoyed higher health, and they were
regularly salted every week; and as the hay
was very poor, they were fed each a peck or
more of wheat bran daily, which might perhaps
increase their desire for water. I know of but
one disadvantage attending the distant mode of
watering: it is that of partially or wholly los-
ing the droppings of the cattle while at the wa-
tering place. This, to be sure, is a loss to some
extent, but it is perhaps as little as can be suf-
fered in any other way. Some farmers, and
good ones too, build small hay barns which
stand scattered about their fields contiguous to
springs or water courses, for storing hay as it is
cut, from which it is fed out in winter, and the
cattle driven to them for that purpose. This is
better than stacking, as the hay is sheltered from
damage; but the cattle are exposed to the in-
flemency of the cold and storms of our northern
winters; and the manure, unless scattered by
the dung beetle in early spring, is very much
lost in its good effects to the soil, and the method
as a general rule is not to be recommended.
These things, however, must depend in their
economy, on circumstances. The proprietor
must take all matters into consideration and ar-
range his buildings and plans according to the
climate, situation, and capacity of his farm.

In connection with this subject, I may be ex-
cused for remarking something upon the neces-
sity of curing hay and other fodder in the best
possible manner. It costs no more to do these
things well than ill, and no remark is required
on the great superiority of good and proper food
for anything requiring it. In all coarse, or of-
fal stock feed, the cutting-box is required to pre-
pare it for *close* consumption. Its use, however,
is both laborious and expensive, and in an ordi-
nary farming country where winter forage is not
extraordinarily dear, it need not be resorted to,
unless for working animals occasionally. Where
economy demands the use of machinery on the
farm; and by *economy* I mean the saving of *ex-
pense* in achieving any kind of productive re-
sult; it should be provided if possible; but in
ordinary stock feeding, the only requisites—*sim-
plicity* and *despatch*,—the uses of the pitchfork
and rake are most in demand. The labors of
the hay and harvest fields are much the most
critical, hurried, and severe of any others on
the farm, and unless seasonably performed, irre-
coverable loss is the consequence; hence the
greatest attention is required for their due per-
formance, and the closest economy should be
practised in the consumption of their products
in the barn and farm yard. But from the neg-
ligent and wasteful manner that is often witness-
ed among our farmers, one might readily sup-
pose that they were of no moment, and required
in their expenditure neither thought nor consid-
eration.

I ought, perhaps, before now to have brought
this, I fear too prolix essay, to a close; but its
importance must be my apology for its length.
I have not the vanity to say that the buildings
and the plans I propose are the *very best* that
can be suggested. I only say, that seven years
experience has convinced me that, taken all to-
gether, they are the cheapest in construction for
the room afforded, and the easiest in the demand
upon labor, that I have yet met with; and were
I now to build again on like premises, I should
not make a single alteration in the *principle* of
their construction. I hope the coming summer
to have them all as well filled as at any time
before, for I can assure you that no sight is
more grateful to me than a spacious barn almost
bursting with the fruits of a well toiled harvest,
and a noble herd of animals near at hand to do
ample justice to its abundance through a coming
winter: thus consuming the forage of the farm,
and returning to its soil valuable treasures of fer-
tilizing stimulants; and yielding in their product,
their increase, and their flesh a valuable profit
to the intelligent and pains-taking husbandman.

I shall make some remarks on the barn yard,
the manure heaps, and the granary, in my next.
BLACK ROCK, April 1842. L. F. A.

Magnesian Limestone.

There is no little controversy going on at the present moment among our Pennsylvania farmers, as to the effect of Magnesia, when it occurs in connexion with Limestone in the state of carbonate, and with it is deprived of its carbonic acid, and in this condition is applied to land. To elucidate this matter, and give some general principles on this subject, we subjoin a valuable extract from Professor Johnston.

1°. *Carbonate of Magnesia* is a tasteless earthy compound, which in some parts of the world forms rocky masses and veins of considerable height and thickness. It occurs more largely however, in connection with carbonate of lime in the magnesian limestones, so well known in the eastern and northern parts of England,—and in similar rocks, distinguished by the name of *dolomites* or of *dolomitic limestones*, in various countries of Europe. The pure, exceedingly light, white magnesia of the shops, is partly extracted from the magnesian limestone, and partly from the mother liquor of the salt pans, which generally contains much magnesia.

When pure and dry, carbonate of magnesia consists of $43\frac{1}{2}$ of magnesia, and $51\frac{1}{2}$ of carbonic acid. It dissolves readily in diluted acids (sulphuric, muriatic, or acetic), the carbonic acid at the same time escaping with effervescence.

Existing as it does in many solid rocks, this carbonate of magnesia may be expected to be present in the soil, and is found in the ashes of many plants. Of the ashes of some parts of plants it constitutes one-sixth of the entire weight.

When exposed to the air in a finely divided state, it gradually absorbs a quantity of moisture from the atmosphere, equal to two-thirds of its own weight. In this state, it dissolves in 48 times its weight of water, though, when dry, it is nearly insoluble. Like carbonate of lime it is also soluble in water impregnated with carbonic acid, but in a somewhat greater degree. In this state of solution, it may be readily carried into the roots, and be the means of supplying to the parts of living vegetables, a portion of that magnesia which is necessary to their perfect growth.

Soils containing much of this carbonate of magnesia, are said to be highly absorbent of moisture, and to this cause is ascribed the coldness of such soils. This opinion is, however, open to doubt.

2°. *Magnesia or Caustic Magnesia, the calcined magnesia of the shops.*—When the carbonate of magnesia is heated to redness in the open air, it parts with its carbonic acid much more readily than lime does, and is brought into the state of pure or caustic magnesia. In this state it does not occur in nature but is occasion-

ally met in combination with about 30 per cent of water. When magnesian limestones or dolomites are burned, the quick-lime obtained often contains caustic magnesia also in considerable quantity. This mixture is frequently applied to the land, and, as is well known in many parts of England, with injurious effects, if laid on in too large quantities. The cause of this hot or burning nature, as it is called, of magnesian lime, is not very satisfactorily ascertained. I shall, however, state two or three facts, which may assist in conducting us to the true cause.

1°. Quick-lime dissolves in 750 times its weight of water, at the ordinary temperature of the atmosphere, while pure magnesia requires 5142 times its weight. The magnesia therefore, is not likely to injure living plants *directly* by entering into their roots in its *caustic* state, since lime which is 7 times more soluble produces no injurious effect.

2°. It seems to be the result of experience, that magnesia in the state of carbonate is but slightly injurious to the land; some deny that in this state it has any injurious effect at all. This I fear is doubtful; we may infer however, with some degree of probability, that it is from some property possessed by magnesia in the caustic state, and not possessed, or at least in an equal degree, either by *quick-lime* or by carbonate of magnesia, that its evil influence is chiefly to be ascribed.

3°. When exposed to the air, quick-lime speedily absorbs water and carbonic acid from the air, forming first a *hydrate** in fine powder, and then a carbonate. Caustic magnesia absorbs both of these more slowly than lime does, and in the presence of the latter, or when mixed with it, must absorb them more slowly still, since the lime will seize on the greater portion of the moisture and carbonic acid which exists in the air, immediately surrounding both. When slaked in the air also, the lime may be transformed in great part into carbonate while the magnesia still remains in the state of hydrate, and it is a property of this hydrate to attract carbonic acid more feebly and slowly, even than the newly burned magnesia as it comes from the kiln. Hence when buried in the soil, after the lime has become nearly all transformed into carbonate, the magnesia may still be all either in the dry caustic state, or in that of a hydrate only.

4°. Now there exist in the soil, and probably are exuded from the living roots, various *acid*

* Compounds of substances with water are called *hydrates* (from the Greek word for water). Thus slaked lime, a compound of lime with water, is called *hydrate of lime*—and the native compound of magnesia with water, alluded to in the text, is called *hydrate of magnesia*.

substances, both of organic and inorganic origin, which it is one of the functions of lime, when applied to the land, to combine with and render innocuous. But these acid compounds unite rather with the caustic magnesia, than with the lime which is already in combination with carbonic acid—and form *salts** which generally are *much more soluble in water* than the compounds of lime, with the same acids. Hence the water that goes to the roots, reaches them more or less loaded with magnesia salts, and carries into the vegetable circulation more magnesia than is consistent with the healthy growth of the plant.

It is hazardous to reason from the phenomena of animal to those of vegetable physiology, yet if lime and magnesia have the power of differently affecting the animal economy, why may they not also very differently affect the vegetable economy? And since in the same circumstances, and in combination with the substances they meet with in the same soils, magnesia is capable of entering more largely into a plant by its roots—may not magnesia be considered capable of poisoning a plant, when lime in the same condition would only improve the soil?

I have said that it may be doubted whether magnesia in the state of carbonate is wholly un hurtful to the land. This doubt rests on the fact that the magnesia *retains* its carbonic acid more feebly than lime does—and therefore its carbonate is the more easily decomposed when an acid body comes in contact with both. Though, therefore, the magnesian carbonate will not lay hold of all acid matter so readily and surely as caustic magnesia may, still occasions may occur where acid matters being abundant in the soil, so much carbonate of magnesia may be decomposed and dissolved as to render the water absorbed by its roots destructive to the health or life of a plant.

In reference to this point, however, it must be distinctly understood, that magnesia is one of the kinds of inorganic food most necessary to plants, that a certain quantity of it in the soil is absolutely necessary to the growth of nearly all cultivated plants, and that it is only when it is conveyed to the roots in too large a quantity, that it proves injurious to vegetable life.

5°. *Sulphate of Magnesia*—the common Epsom salts of the shops—is formed by dissolving carbonate of magnesia in diluted sulphuric acid. It exists in nearly all soils which are formed from, or are situated in, the neighbourhood of rocks containing magnesia. In some soils it is so abundant that in dry weather it

forms a white efflorescence on the surface. This has been observed to take place in Bohemia Hungary, and parts of Germany, and it may be frequently seen in warm summer weather in the neighbourhood of Durham.

This salt has been found by Sprengel to act upon vegetation precisely in the same way as gypsum does, and on the same kind of plants. It must be used, however in smaller quantity, owing to its great solubility. Its higher price will prevent its ever being *substituted* for gypsum, as a top-dressing for clover, &c., but it is worth the trial, whether corn plants, the grain of which contains much magnesia, might not be benefited by the application of a small quantity of this sulphate—along with such other substances as are capable of yielding the remaining constituents which compose the inorganic matter of the grain.

CULTIVATION OF WHEAT.—I this autumn tried an experiment on wheat sowing: our crops of wheat in this district are very apt in our clay soils on the banks of the Forth called Carie, to be thrown out in spring, by alternate nights of frost and days of sunshine, whereby the roots, if the plants are not entirely destroyed, are so injured that to support nature the plant puts out side shoots, and there being no firm hold of the ground, becomes what in England is called root-fallen, and lodges long before the grain is ripe, thereby producing grain of an inferior quality as well as quantity. To endeavour to get the better of these faults, I tried what drilling my wheat as beans are drilled in our cars would do. I sowed my wheat by a plough drawn by two horses five or six inches deep, and covered it with the next furrow at ten or eleven inches breadth. I never harrowed it after sowing, and horse's foot never trod on it. The wheat was covered by the deepest part of the furrow; and to my surprize and that of my neighbours, the wheat thus sown and covered came up sooner than wheat sown the same day in the common broadcast way on some adjacent ground of similar quality, and the fallow treated exactly the same as to ploughing, liming, &c, through the summer. As it is well known that wheat prefers a stiff soil to a loose one, I attributed the rapidity of growth to the stiff soil suiting the wheat more than the loose broadcast, for it not only came sooner, but kept the start it got, and now, after heavy rains and frost, looks better, the ground not being run together and battered with the winter rains, as the broadcast wheat is; and having examined it during severe frosts, I found that the roots of the plant had not suffered by it, whilst that sown broadcast had. The roots of the drilled wheat were actually considerably longer, than the

* Compounds of the *bases*,—potash, soda, lime, magnesia, &c.,—with *acids*,—sulphuric, muriatic, nitric, acetic (or vinegar), &c.,—are called salts.

broadcast sown the same day; I have, therefore little doubt that I shall most probably have a standing crop of wheat in place of a lodged one, or at least not so soon lodged, and that I shall escape the root falling from the spring frost. It is well known that in England an instrument called the presser is used in light soils to firm the ground, and also that sheep are often pastured or driven over it for that purpose. Another advantage of this plan of sowing is, that all trouble and time of harrowing is saved; and if sudden rain comes on, the sowing is stopped at once, without the risk of being half drowned; the ground is also much more cloddy in winter, thus affording shelter to the young plants, and an excellent cover for grass seeds, if sown in a dry, bleak, frosty morning, without harrowing, by the decomposition and falling down or mouldering of the ground as the day advances, and the effects of the sun are felt on it. My experiment extended over two fields, comprehending about twenty acres; and I harrowed part of the one field and I think the part unharrowed looks better than the harrowed: however, time will show which has succeeded best. I was thrice stopped by rain during the sowing, but as I said above, felt no inconvenience from it. I shall be happy to hear any observations from yourself or correspondents. Perhaps it is no novelty, the experiment I have made; but in this part of the country drilling of wheat in the common way, and sowing eight or nine drills at a time, and then harrowing, is common enough, and I frequently do it myself; but to drill it by ploughing down five or six inches, as I have described, has not been tried before, and most people thought it was so deep it might be long of appearing. Indeed, some thought it would never appear, but none were prepared for the more rapid vegetation than the broadcast, nor for its keeping the start it took at first and which I impute entirely to the firm soil in which it was planted suiting the grain better than the loose. My drill machine is fixed between the stils of the plough, and one horse is sufficient, the same man ploughing and sowing, and no harrowing being required considerable labour is saved. As to the crop, that cannot be determined till harvest, but I am satisfied with the experiment so far as it has gone.—*London Farmers Mag.*

FATTENING CATTLE.—I found to fatten a pair of good oxen at Ville Auburn, would take forty-five cart-loads of raves and a ton of hay. When the raves were done they give ground corn, with water enough added to form a paste; this they leave four or five days to become sour, and then dilute it with water, thicken it with cut chaff, and give it to the oxen thrice a day.

At Bassie, the same. They assert that oxen like it better for being sour, and that it answers better in fattening them. They eat about a bushel a day, weighing twenty two-pounds, and never give this and liquor without chopped hay.

The droves I met coming to Paris, to the amount of twelve or fifteen hundred, were with few exceptions very fat—fatter than oxen are commonly seen in England in the spring. I handled many scores of them, and found them well fatted.

At Limogen the same process, but with the addition of a *leaven* to the paste, to quicken the fermentation and make it quite sour. At first the oxen will not drink it, but they are starved to it; they usually take it the second day, and after they have begun like it much, and never leave a drop.

Between Brice and Cressenne they use maize, and to make them fatten sooner and better they give them every night, and sometimes in a morning, a ball of pork-grease as large as an apple. It increases the appetite, and the beasts perfectly devour their food after it, and their coats become smooth and shining. All here give salt plentifully.—*Pott's Cyclopædia.*

AGRICULTURAL ADVANCEMENT.—The great auxiliary of the Flemish farmer is the urine tank, wherein are collected not only the urine of cows and horses, but also the draining of the dung-hills. The urine tanks are generally sunk below the level of the ground, and have the sides built of brick, and the bottom paved: they are of various dimensions, according to the number of cows and horses on the farm. Attached to the distilleries where many beasts are constantly kept to consume the refuse wash, there are very large urine tanks of an oblong shape, divided by partitions into different chambers, so that the liquor may be of the proper age when it is used, which some farmers think ought to be six months. Each chamber is about eight feet square and six or eight feet deep: these are sometimes vaulted over, but frequently only covered with loose boards. As urine and the emptyings of privies are sold wholesale and retail, there are many large tanks near the rivers and canals, where the dealers have sometimes great quantities in store. Some of these consist of many square pits like tan-pits, bricked round, and the inside covered with cement, which prevents loss by filtration. There is generally in a corner of each pit a graduated scale by which the number of barrels, or tons of liquid in the tank may be ascertained by observing the height of the surface. These tanks are generally filled by boat loads brought from the large towns; and when the season arrives for sowing, in spring and autumn, the farmers come with

their carts and tubs, and purchase as much as they may want. The price varies from three to five francs (56 to 93 cts.) per hogshead, according to the quality. In a small farm of thirty to forty acres the tank is generally about twenty feet long, twelve wide, and six deep, with a partition in the middle, and arched over, leaving an opening for the pump, and another sufficient to allow a man to go in to empty out the earthy deposit which falls to the bottom. A trap door shuts over this aperture, to prevent accidents. Sometimes the tank is round like a well, with a domed top, and so deep in the ground that it has a foot or two of earth over it. The situation of the tank is either in the farm-yard near the entrance of the cow-house, or immediately behind it; sometimes it is like a cellar under the building, but this is apt to cause a disagreeable smell in the cow-house. We here describe those which we consider the most convenient: the form and capacity of the tanks vary greatly according to the means and notions of the proprietors of the farms, but a tank of some kind or other is considered as an appendage indispensable to a farm as a barn or cow-house. The farmer would as soon think of dispensing with his plough as with his tank: and no expense or trouble is spared to keep this well supplied. The numerous towns and villages in Flanders afford great help in the way of manure. The thrifty housewife and her active substitute, the maid, know the value of what in our households is thrown away or wasted and lost. A small tank, or a tub, sunk in the ground in some corner, contains all the liquid which can in any way be useful, soap-suds, washing of dishes, &c, are carefully kept in this reservoir, until, once a week, the farmer or contractor calls with his tub on a cart; and this, mixed with the contents of privies, which are frequently emptied, he keeps in large cisterns for use or sale.—*Flemish Husbandry.*

BREAKING HORSES.—Some 30 years ago there was an Irish groom called "the Whisperer," who had the skill of subduing the most unmanageable horse. His plan was to be closely shut up with the animal, when he pretended to whisper to him, and after being "at confession" about 30 minutes, he would lead out the horse perfectly subdued. Some almost incredible examples are related of his success. He would never communicate the secret of his art, and it died with him. It is probably detailed below by our intelligent countryman, Catlin. Its success has been satisfactorily tested in some instances among civilized horses, since its publication.

"I have often, in concurrence with a well-known custom of the country, held my hand over the eyes of the calf, and breathed a few strong breaths into the nostrils; after which I have, with my hunting companions, rode several miles into our encampment, with the little

prisoner busily following the heels of my horse the whole way, as closely and affectionately as its instinct would attach it to the company of its dam. This is one of the most extraordinary things that I have met with in the habits of this wild country; and although I had often heard of it, and felt unable exactly to believe it, I am now willing to bear testimony to the fact, from the numerous instances which I have witnessed since I came into the country. During the time that I resided at this post, in the spring of the year, on my way up the river, I assisted (in numerous hunts of the buffalo, with the Fur Company's men), in bringing in, in the above manner, several of these little prisoners, which sometimes followed for 5 or 6 miles close to our horses' heels, and even into the Fur Company's fort, and into the stable where our horses were led. In this way, before I left for the head waters of the Missouri, I think we had collected about a dozen. In the same way the wild horses are tamed. When the Indian has got him well secured with the lasso, and a pair of hobbles on his feet, he gradually advances, until he is able to place his hand on the animal's nose, and over his eyes, and at length to breathe in its nostrils, when it soon becomes docile and conquered; so that he has little more to do than to remove the hobbles from his feet, and lead or ride it into camp."

USE OF CARROTS AND PARSNIPS FOR HORSES.—Can any of our readers inform us whether the injurious effect detailed in the following extract from Quayles Agriculture, have ever been realised in this country? The liberal use of salt would, we have no doubt, prevent this effect partially or wholly.

"Horses eat this root greedily, but in this island it is never given them, as it is alleged that when on this food their eyes are injured." Again, in the island of Guernsey, he says:—"To horses, parsnips are frequently given, and have the property of making them sleek and fat; but in working, they are observed to sweat profusely. If new, and cut sufficiently small, no other ill effect results, except indeed, at one period of the year, towards the close of February, when the root begins to shoot; if then given, both horses and horned cattle are subject, on this food, to an inflammation in the eyes, and epiphora, or weeping; in some subjects perhaps producing blindness."

PROTECTION OF COTTON FROM THE LOUSE.—Lewis M. Garrett, of Madison co. in our State, in a communication to the Agriculturist of Nashville, says that the best way to prevent the depredations of lice on cotton is to leave balks between the ridges, to grow up in grass and weeds, and remain unploughed until the

cotton is advanced beyond danger, or the louse has disappeared.

His theory on the subject is this: The louse will prey upon any thing juicy and green as well as upon cotton—and by leaving plenty of weeds, &c, between the rows to amuse the hungry insect, his attention will be divided and the cotton be less molested. If on the other hand the field is broke up, and every green thing removed except the few stalks of cotton left to make the stand, (as is the common practice) those stalks being all that is left for their food the whole army of depredators will at once attack.

Mr. Garrett also recommends that the cotton should not be too closely *thinned*, as by leaving more stalks for the louse to prey on, the few you want for the stand will have a better chance to escape.

The notions of Mr G. seems very reasonable and correct, and experiments on his advice are certainly worth trial. We can add our own recollections on the subject, which favor the same views. Some years ago it was the common practice in planting cotton, to throw up a ridge of four furrows, leaving balks of grass and weeds, as Mr. G. advises, to be ploughed out after the cotton was scraped; and at that period, suffering from the louse was not heard of among our planters. This system has now however been thrown aside as slovenly, and we now every year, have more or less complaints of ice.

VALUABLE HINTS ON BUTTER MAKING AND PACKING.—"Solidity and firmness, I think, is of more consequence than is generally allowed; the nearer butter can be made of the consistency of wax, the longer it will keep its flavour; and as it is not so easily acted upon by the atmospheric air, it will retain less salt or brine, being divested more effectually of the buttermilk, consequently will be less disposed to acidity.

"To accomplish this object I recommend salting the cream by putting rather more fine table salt to it than is used when applied after churning, because a part will be left with the buttermilk; or, use strong clean brine, the produce of the salt generally used, and mix with the cream or butter, the hand to be used in the making as little as possible, (the earlier the butter is made, and the cooler the dairy the better—the latter should be washed out with salt and water the first and last thing every day.) The hand relaxes the texture of the butter; it might by a little practice be avoided altogether by using wooden pats (the same as used by the London cheesemongers) for putting into casks, or making into shape for sale, which will press out the whey effectually by beating. These pats must be always, (except when in the hand for use) kept in a tub of fresh cold water, which will prevent the adhering of the butter and keep them cool.

"The quantity of salt or brine required, will in some degree depend on the season of the year, the distance to be sent, and time to be kept. Brine is preferable to salt, as the butter is smoother and better flavored. If salt be used, it may be in the proportion of half an ounce of dry table salt mixed with two

drachms of fine saltpetre, and two drachms of fine yellow dry Jamaica sugar, to every pound of butter. If the butter be made up in lumps for the market, I would recommend that every lump be wrapped round with a piece of calico soaked in brine made from fine dry salt, that will carry an egg; if the brine be weak and watery it may be injurious. If the butter be put into a firkin or half-firkin, the cask should be made of white oak, ash, or sycamore, or beech (the whiter the wood and hoops the better it pleases the eye,) well seasoned by scalding out several times with hot brine made from pure and clean salt. It should be well bound and made water tight, with head and bottom groved; three pounds should be allowed for soakage.

"If very choice butter, I would recommend a salt cloth around the butter, also on the top and at the bottom; the cloth can be kept in its place by a hoop, which can be removed as the cask fills; in either case the cloths can be returned or sold to the buyer, as many of the cheesemongers use cloth instead of paper in sending out the butter to the consumer.

"Much observation, attention, and arrangement is required to see and judge as to what improvement can be effected in the make of butter; comparative statements from different dairies at different times—the temperament of the milk and cream in the different stages—the situation and state of the dairy—the quantity and quality of cream the milk will yield in different localities, under different management—the effects of the use of various sorts of salt, brine, sugar, honey, or saltpetre, mixed with the milk, the cream, or the butter—the effect of mixing different milks together—the effect of heat and acid applied in churning; the best sort of colouring, if any and what description of food has such effect, the effect of dry, wet or shady pasture, also of regular exercise for the cows, if any, and what effect as the production of cream in proportion to the milk given by the cows, if feeding on corn or grain, or by adding meal in the water for drink."

WILLIAM WERE.

Mr. Burke also stated that in many parts of Holland the brine was added, not to the butter itself, but to the cream from which it was to be obtained; and that he believed honey to be preferable to sugar as an addition for improving its quality. *Roy. Ag. Soc. Trs.*

NEW CLOVER.—Two new clovers have been attracting attention in France. One is the Hybrid, and the other the Elegant. Elegant clover was for some time considered identical with one called T. hybridum, cultivated in Sweden; when, however, growing together, the differences are striking; the latter is larger in all parts than the former, and the colour of its flowers is a brighter rose, shaded with white in the centre, while the Elegant trefoil has rather dull reddish rose blossoms, coloured alike in every part of the flower-head. The appearance of the herbage is different; the Hybrid clover has bright and dark foliage, and that of the Elegant is pale and unequal; the leaflets of the latter are also marked with a brown band like common clover, which is not the case with the hybrid. Another character of the Hybrid is, that in summer, when it begins to shed its blossom, and during the autumn, the root throws out fresh foliage, arranged like a rosette; but in the Elegant trefoil this does not occur; it is the lateral branches which rest on the ground that supply the verdure. The Elegant trefoil is found in abundance on poor clayey strong soils, where it grows thick and vigorous; it is wild in France in many places, not unfrequently in ferruginous sand. It is more than probable that both the species will one day form valuable additions to our forage plants, as they appear as though they would succeed on land unsuitable for clover, lucern, and sainfoin. *Bon Jardinier.*

SUGGESTIONS FOR AGRICULTURAL SOCIETIES.—I propose making it conditional that no male animal shall be allowed to compete for a prize without producing a certificate that during the past year he has served such a fair proportion of females as may be fixed on.

Also I would suggest that instead of a premium being given commonly to the fattest animal exhibited, a strict enquiry should be made as to the expense of bringing it into that fatted state, and decided by a preference given to that animal or breed which has acquired the best condition on the poorest cheapest fare. It can be of no value to the generality of our farmers who look for their subsistence to the profits derived from their farms by judicious economy, to know that the wealthy expend a sum in preparing their stock for shows, double its value when ready for exhibition; on the contrary, the really valuable gift to our nation would be those animals arriving at a state of perfection at the smallest expense, and such only ought to obtain premiums.

But to be brief. With regard to prizes, I would place a new, earlier, more prolific, better kind of grain, capable of being grown on inferior soils, as first of importance, since on grain depends the lives of nine-tenths of our immense population; and let it not be forgotten that one bushel of increased produce in grain over every arable acre in Britain would add 1,200,000 quarters annually to the present average of our corn crops. What object then deserves really the greatest encouragement?

The second place should be assigned to new superior roots, grasses, or any kind of vegetable food.

Superior ploughs, a perfect dibbler, or other implements, capable of performing the various operations necessary for tillage best, and at least expense, should decidedly in justice stand third—for their benefits would be felt speedily all over the country.

As to deciding by the necessarily brief trials at our annual shows, the thing is impossible; but let our Society call on the many willing to devote their time and talents to this most important object, and there will be no want of hundreds ready to form a committee perfectly competent to decide the question, at furthest within six months from their appointment.

Discoveries of new and valuable economical manures, the destruction of the wire worm, turnip fly, grub, and remedies for the many other evils which afflict the best agriculturists, should come next, and not yield in importance to the all-absorbing premiums for animals which ought to stand fourth; though I fear that old habits and prejudice will yet for a while get the better of reason, and give them a higher place than I

hope I have succeeded in proving them to deserve.

The principal points of all the best and worst animals exhibited at our shows, should be written out by their judges, and for the information of young agriculturists who attend our shows to acquire instruction, placed as tickets on some conspicuous part of each animal.—*Lon. Far. Mag.*

BOKHARA CLOVER appears to be a variety of *Melilotus Arborea*, was given me by Mr. Loudon in the spring of 1839. It vegetated freely, and grew most luxuriantly up to the latter part of September, when it was four feet high; it was then mown, and the stalks manufactured into strong and durable hemp. Horses eat the plant with great avidity in its young state; and to judge from the extraordinary growth the first year, it may be fed off three times, namely, the middle of June, July, and August. It stood the winter of 1839-40 well, proving itself to be a hardy plant. On the 28th of April, 1840, a small portion of it was cut, which was then 15 inches high; on the 28th of May again, height 16 inches; and subsequently on the 18th of June, height 17 inches; in August 15 inches, and in September 12 inches; the first flowers appeared in June, and by the middle of July it was covered with its highly fragrant white blossom. A large portion had been left for seed, and towards the end of September the crop was harvested, each plant producing from 10 to 20,000 seeds, the stalks being from 12 to 13 feet in height. From the experiments I have made with Bokhara Clover, I should calculate that an acre would produce from 20 to 30 tons of green herbage. The first year it may be cut in June, July, and August, each cutting averaging three to five tons of green herbage. The second year in April, May, June, July, August and September, each month producing three to five tons of herbage. If intended to be saved for seed, it must not be cut more than three times, in April, May and June. The roots form a sort of manure; and from two to three tons of hemp. Great advantage must be derived from its cultivation, as it forms a valuable green food for all sorts of cattle at an early period of the season; and if cut when 15 or 20 inches high, an abundant crop would be produced, yielding hay superior in quality and quantity to the common herbage plants. To judge from what has hitherto been seen of the Bokhara Clover, it appears to be a valuable biennial plant, well adapted for growth in this country; nor is it unlikely that it may be found to thrive on such soils as, by agriculturists, are termed clover-sick; whereby its value would be greatly enhanced. Should it, as may reasonably be expected, in ordinary seasons on good soils, be ready for cutting in the early part of April, farmers who have no grass, and but a short supply of hay, carrots, or turnips, would derive essential benefit from it. The Bokhara Clover being a tall, deep-rooted plant, with a strong stem well clothed with foliage and blossom, it keeps the ground in a more perfect state than most other plants of the artificial grass kind, and consequently will be more influential in ameliorating and preparing the soils for the reception of wheat crops. It is a plant capable of being cultivated with success and advantage on almost all heavy and dry descriptions of land if in a tolerable state of fertility; and it may be sown from March till June. The proportion of seed that is necessary must vary according to the quality of the land and the state of preparation to which it has been brought; on the richer descriptions of soil that are free from weeds, 8